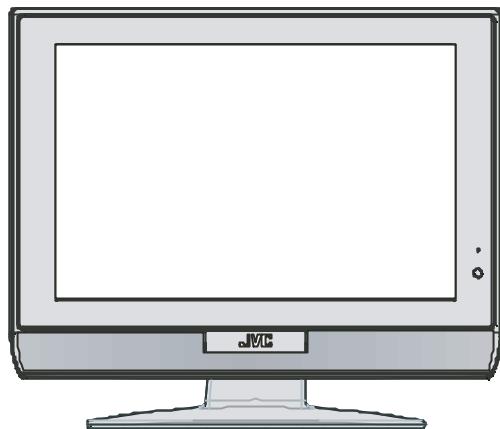


# JVC

## SERVICE MANUAL

WIDE LCD PANEL TELEVISION

### LT-23D50BK



InteríArt



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# SPECIFICATION

Items		Contents
Dimensions ( W × H × D )		61.4cm × 48.2cm × 24.0cm [Included stand] 61.4cm × 43.8cm × 7.9cm [TV only]
Mass		7.4kg [Included stand] 6.4kg [TV only]
Power Input		AC100 to AC240 V, 50 Hz
Power Consumption		108W (Standby: 3.0W)
TV RF System	Analog Digital	CCIR (B/G, I, D/K, L) DVB-T
Colour System		PAL, SECAM, NTSC 3.58/4.43 [EXT only]
Stereo System		NICAM (B/G, I, D/K, L), A2 (B/G, D/K)
Receiving Frequency	Analog Digital CATV	VHF: 47 MHz - 470 MHz UHF: 470 MHz - 862 MHz UHF: 474 MHz - 858 MHz 68 MHz - 174 MHz, 230 MHz - 470 MHz
Intermediate Frequency	VIF SIF	38.9 MHz (B/G, I, D/K, L) 33.4 MHz (5.5 MHz: B/G) 32.9 MHz (6.0 MHz: I) 32.4 MHz (6.5 MHz: D/K, L)
Colour Sub Carrier Frequency	PAL SECAM NTSC	4.43 MHz 4.40625 MHz / 4.25MHz 3.58 MHz / 4.43 MHz
Teletext System	Analog Digital	TOP, FLOF (Fastext level 2.5), WST(World Standard system) MHEG 5 UK profile
LCD panel	23V-inch wide aspect (16:9)	
Screen Size	Diagonal : 58.3cm (H:50.8cm × V : 28.6cm)	
Display Pixels	Horizontal : 1366 dots × Vertical : 768 dots (W-XGA)	
Audio Power Output	5W + 5W(10% THD)	
Speaker	3.4cm × 14.5cm oval type × 2	
Aerial terminal (VHF/UHF)	EU-type connector, 75Ω unbalanced, coaxial	
EXT-1 / EXT-2 (Input / Output)	21-pin Euro connector (SCART socket) × 2	
EXT-3(Input)	Component Video 625p / 525p / 625i / 525i  Audio	RCA pin jack × 3 Y : 1V (p-p), Positive (Negative sync provided), 75 Ω Cb/Cr : 0.7V(p-p), 75 Ω 500mV(rms) (-4dBs), high impedance, RCA pin jack × 2
EXT-4 (Input)	S-Video  Video  Audio	Mini-DIN 4 pin × 1 Y: 1V (p-p), Positive (Negative sync provided), 75 Ω C: 0.286V (p-p) (Burst signal), 75 Ω 1V (p-p), Positive (Negative sync provided), 75 Ω, RCA pin jack × 1 500mV (rms), High impedance, RCA pin jack × 2
PC (RGB) Input	D-sub 15pin × 1 R/G/B : 0.7V (p-p), 75Ω HD / VD : 1V (p-p) to 5V (p-p), high impedance < Available signal > Horizontal : 30kHz - 69kHz Vertical : 50Hz - 75Hz [Resolution : 640 pixels × 400 pixels, 640 pixels × 480 pixels(VGA), 720 pixels × 400 pixels, 800 pixels × 600 pixels(SVGA), 1024 pixels × 768 pixels(XGA), 1280 pixels × 720 pixels, 1360 pixels × 768 pixels(W-XGA)]	
PC AUDIO input	3.5mm stereo mini jack × 1	
Audio output	500mV (rms), Low impedance, RCA pin jack × 2	
Subwoofer output	More than 0 to 1000mV (rms) (+2.2dBs), low impedance (80Hz when modulated 100%), RCA pin jack × 1	
Headphone	3.5mm stereo mini jack × 1	
Remote Control Unit	RM-C1895 (AA/R6 dry cell battery × 2)	

Design & specifications are subject to change without notice.

# **SECTION 1**

## **PRECAUTION**

### **1.1 SAFETY PRECAUTIONS**

- (1) The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- (2) Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- (3) Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (  $\Delta$  ) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may cause shock, fire, or other hazards.
- (4) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

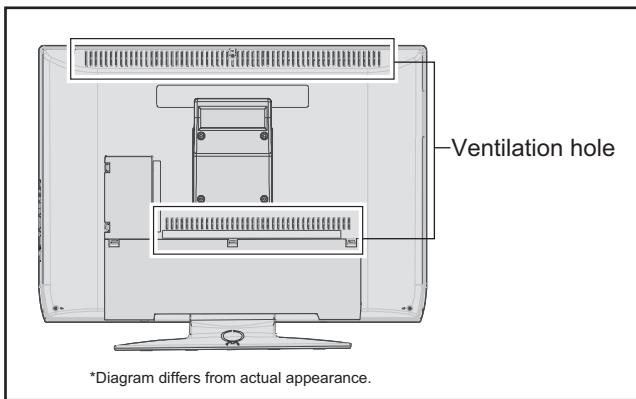
### **WARNING**

- (1) The equipment has been designed and manufactured to meet international safety standards.
- (2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
- (3) Repairs must be made in accordance with the relevant safety standards.
- (4) It is essential that safety critical components are replaced by approved parts.
- (5) If mains voltage selector is provided, check setting for local voltage.

## 1.2 INSTALLATION

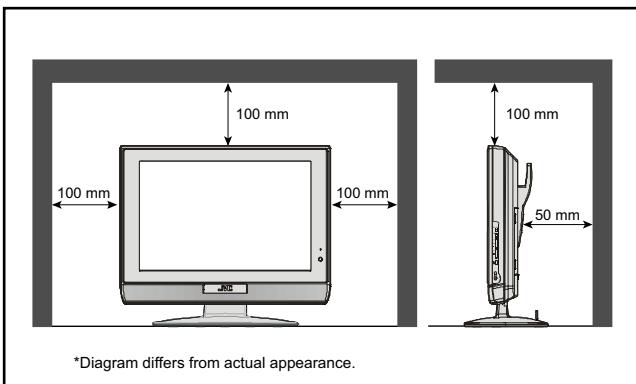
### 1.2.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise. The temperature sensor that protects the unit will be activated when internal temperature exceeds the pre-determined level and power will be turned off automatically. Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.



### 1.2.2 INSTALLATION REQUIREMENTS

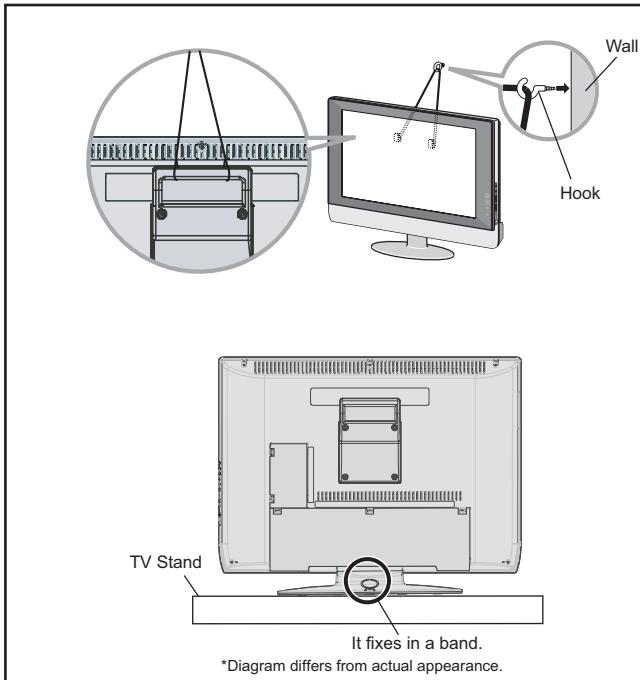
Ensure that the minimal distance is maintained, as specified below, between the unit with and the surrounding walls, as well as the floor etc. Install the unit on stable flooring or stands. Take precautionary measures to prevent the unit from tipping in order to protect against accidents and earthquakes.



### 1.2.3 INSTALLATION REQUIREMENTS

To ensure safety in an emergency such as an earthquake, and to prevent accidents, ensure that measures are taken to prevent the TV dropping or falling over.

Use the supplied screws to firmly attach the supplied hooks (OPTION) to the back of the TV, and use commercially available cord to fix the TV to rigid components such as walls and columns.



### 1.2.4 NOTES ON HANDLING

#### (1) WHEN TAKING UNIT OUT OF A PACKING CASE

When taking the unit out of a packing case, do not grasp the upper part of the unit. If you take the unit out while grasping the upper part, the LCD PANEL may be damaged because of a pressure. Instead of grasping the upper part, put your hands on the lower backside or sides of the unit.

#### (2) AS FOR PRESSING OR TOUCHING A SPEAKER

Be careful not to press the opening of the speaker in the lower part of the unit and around them since the decorative sheet on the surface of the openings may be deformed.

## 1.3 HANDLING LCD PANEL

### 1.3.1 PRECAUTIONS FOR TRANSPORTATION

When transporting the unit, pressure exerted on the internal LCD panel due to improper handling (such as tossing and dropping) may cause damages even when the unit is carefully packed. To prevent accidents from occurring during transportation, pay careful attention before delivery, such as through explaining the handling instructions to transporters.

Ensure that the following requirements are met during transportation, as the LCD panel of this unit is made of glass and therefore fragile:

#### (1) USE A SPECIAL PACKING CASE FOR THE LCD PANEL

When transporting the LCD panel of the unit, use a special packing case (packing materials). A special packing case is used when a LCD panel is supplied as a service spare part.

#### (2) ATTACH PROTECTION SHEET TO THE FRONT

Since the front (display part) of the panel is vulnerable, attach the protection sheet to the front of the LCD panel before transportation. Protection sheet is used when a LCD panel is supplied as a service spare part.

#### (3) AVOID VIBRATIONS AND IMPACTS

The unit may be broken if it is toppled sideways even when properly packed. Continuous vibration may shift the gap of the panel, and the unit may not be able to display images properly. Ensure that the unit is carried by at least 2 persons and pay careful attention not to exert any vibration or impact on it.

#### (4) DO NOT PLACE EQUIPMENT HORIZONTALLY

Ensure that it is placed upright and not horizontally during transportation and storage as the LCD panel is very vulnerable to lateral impacts and may break. During transportation, ensure that the unit is loaded along the traveling direction of the vehicle, and avoid stacking them on one another. For storage, ensure that they are stacked in 2 layers or less even when placed upright.

### 1.3.2 OPTICAL FILTER (ON THE FRONT OF THE LCD PANEL)

- (1) Avoid placing the unit under direct sunlight over a prolonged period of time. This may cause the optical filter to deteriorate in quality and COLOUR.
- (2) Clean the filter surface by wiping it softly and lightly with a soft and lightly fuzz cloth (such as outing flannel).
- (3) Do not use solvents such as benzene or thinner to wipe the filter surface. This may cause the filter to deteriorate in quality or the coating on the surface to come off. When cleaning the filter, usually use the neutral detergent diluted with water. When cleaning the dirty filter, use water-diluted ethanol.
- (4) Since the filter surface is fragile, do not scratch or hit it with hard materials. Be careful enough not to touch the front surface, especially when taking the unit out of the packing case or during transportation.

### 1.3.3 PRECAUTIONS FOR REPLACEMENT OF EXTERIOR PARTS

Take note of the following when replacing exterior parts (REAR COVER, FRONT PANEL, etc.):

- (1) Do not exert pressure on the front of the LCD panel (filter surface). It may cause irregular COLOUR.
- (2) Pay careful attention not to scratch or stain the front of the LCD panel (filter surface) with hands.
- (3) When replacing exterior parts, the front (LCD panel) should be placed facing downward. Place a mat, etc. underneath to avoid causing scratches to the front (filter surface).

## SECTION 2

### SPECIFIC SERVICE INSTRUCTIONS

#### 2.1 FEATURES

##### DVB-T (DIGITAL TERRESTRIAL BROADCASTING)

This TV can receive both Digital terrestrial broadcasting (DVB-T) and Analogue terrestrial broadcasting.

##### T-V LINK

When you have a T-V LINK compatible VCR connected to the EXT-2 Terminal on the TV, it is easier to set up the VCR and to view videos.

##### ZOOM

This function can change the screen size according to the picture aspect ratio.

##### OFF TIMER

This function can set the TV to automatically turn off after a set time.

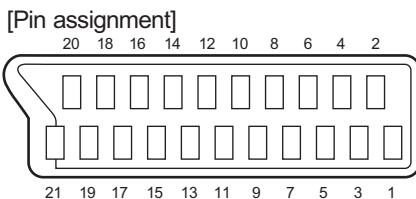
##### COLOUR SYSTEM

If the picture is not clear or no colour appears, change the current colour system to another colour system.

#### 2.2 21-PIN EURO CONNECTOR (SCART) : EXT-1 / EXT-2

Pin No.	Signal designation	Matching value	EXT-1	EXT-2
1	AUDIO R output	500mV(rms) (Nominal),, Low impedance	Used (TV OUT)	Used (LINE OUT)
2	AUDIO R input	500mV(rms) (Nominal),, High impedance	Used (R1)	Used (R2)
3	AUDIO L output	500mV(rms) (Nominal),, Low impedance	Used (TV OUT)	Used (LINE OUT)
4	AUDIO GND		Used	Used
5	GND (B)		Used	Used
6	AUDIO L input	500mV(rms) (Nominal),, High impedance	Used (L1)	Used (L2)
7	B input	700mV <sub>(B-W)</sub> , 75Ω	Used	Used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V High : 8V-12V, High impedance	Used	Used
9	GND (G)		Used	Used
10	SCL / T-V LINK		Not used	Used (SCL2 / TV-LINK)
11	G input	700mV <sub>(B-W)</sub> , 75Ω	Used	Used
12	SDA		Not used	Used (SDA2)
13	GND (R)		Used	Used
14	GND (YS)		Used	Not used
15	R / C input	R : 700mV <sub>(B-W)</sub> , 75Ω C : 300mV <sub>(P-P)</sub> , 75Ω	Used (R)	Used (C2/R)
16	Ys input (FAST SW)	Low : 0V-0.4V, High : 1V-3V, 75Ω	Used	Used
17	GND (VIDEO output)		Used	Used
18	GND (VIDEO input)		Used	Used
19	VIDEO output	1V <sub>(P-P)</sub> (Negative sync), 75Ω	Used (TV OUT)	Used (LINE OUT)
20	VIDEO / Y input	1V <sub>(P-P)</sub> (Negative sync), 75Ω	Used	Used
21	COMMON GND		Used	Used

(P-P= Peak to Peak, B-W= Blanking to white peak)



## 2.3 TECHNICAL INFORMATION

### 2.3.1 LCD PANEL

This unit uses the flat type panel LCD (Liquid Crystal Display) panel that occupies as little space as possible, instead of the conventional CRT (Cathode Ray Tube), as a display unit.

Since the unit has the two polarizing filter that are at right angles to each other, the unit adopts "normally black" mode, where light does not pass through the polarizing filter and the screen is black when no voltage is applied to the liquid crystals.

#### 2.3.1.1 SPECIFICATIONS

The following table shows the specifications of this unit.

Item	Specifications	Remarks
Displayed colour	16777216 colours	256 colours for R, G, and B
Brightness	450cd/m <sup>2</sup>	
Contrast ratio	800: 1	
Response time	25ms	
View angle	Horizontally: 170°, Vertically: 170°	

#### 2.3.1.2 PIXEL FAULT

There are three pixel faults - bright fault , dark fault and flicker fault - that are respectively defined as follows.

##### ■ BRIGHT FAULT

In this pixel fault, a cell that should not light originally is lighting on and off.

For checking this pixel fault, input ALL BLACK SCREEN and find out the cell that is lighting on and off.

##### ■ DARK FAULT

In this pixel fault, a cell that should light originally is not lighting or lighting with the brightness twice as brighter as originally lighting.  
For checking this pixel fault, input 100% of each R/G/B colour and find out the cell that is not lighting.

##### ■ FLICKER FAULT

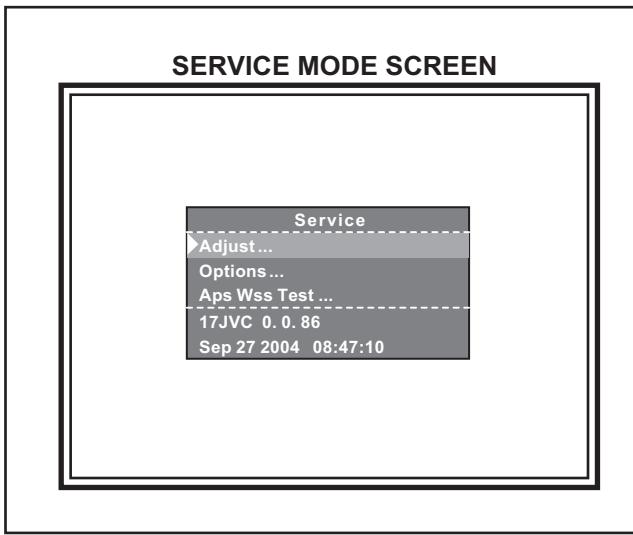
In the pixel fault, a cell that should light originally or not light originally is flashing on and off.

For checking this pixel fault, input ALL BLACK SCREEN signal or 100% of each RGB colour and find out the cell that is flashing on and off.

## 2.4 BASIC OPERATION OF SERVICE MODE

### 2.4.1 HOW TO ENTER THE SERVICE MODE

(1) Press [INFORMATION] key and [MUTING] key on the remote control unit simultaneously to enter the SERVICE MODE SCREEN.



### 2.4.2 HOW TO EXIT THE SERVICE MODE

Press the [MENU] key to exit the Service mode.

### 2.4.3 CHANGE AND MEMORY OF SETTING VALUE

#### ■ SELECTION OF SETTING MENU & ITEM

- [FUNCTION ▲/▼] key : Select the SETTING MENU & ITEM
- [OK] key : Decision the SETTING MENU & ITEM

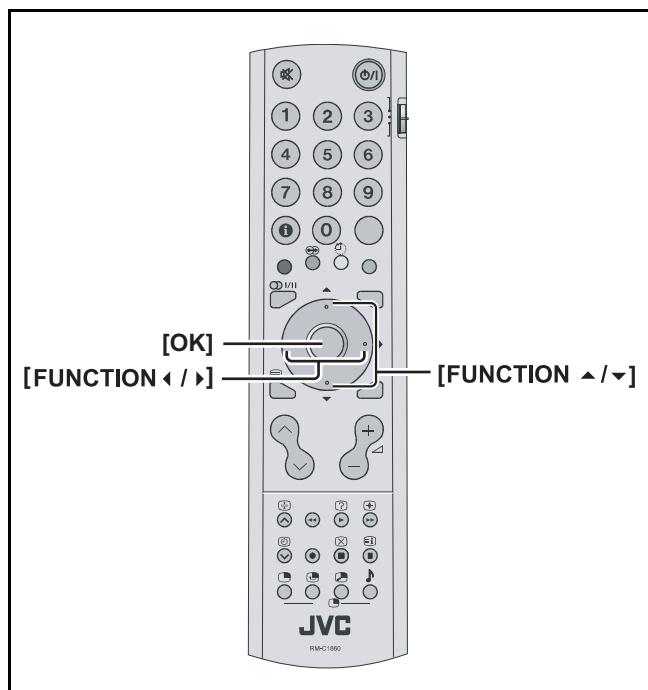
#### ■ CHANGE OF SETTING VALUE (DATA)

- [FUNCTION ◀/▶] key.

#### ■ MEMORY OF SETTING VALUE (DATA)

The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys

### 2.4.4 SERVICE MODE SELECT KEY LOCATION



## 2.4.5 SERVICE MODE SETTING ITEMS

Setting menu	Setting items	Contents
Adjust	Group	----
	Mode	----
	Col. Temp.	----
	Contrast	----
	Brightness	----
	Colour	----
	Sharpness	----
	Red	----
	Green	----
	Blue	----
Option 1	Aps Volume	----
	First APS	If ON, TV starts with APS menu at Start-up
	FM Prs Avl On	Adjusts the FM Prescaler value, when Automatic Volume Levelling is On
	Nicam Prs Avl On	Adjusts the Nicam Prescaler value, when Automatic Volume Levelling is On
	Scart Prs Avl On	Adjusts the Scart Volume value, when Automatic Volume Levelling is On
	Scart Volume Avl On	Adjusts the Scart Volume value, when Automatic Volume Levelling is On
Option 2	FM Prs Avl Off	Adjusts the FM Prescaler value, when Automatic Volume Levelling is Off
	Nicam Prs Avl Off	Adjusts the Nicam Prescaler value, when Automatic Volume Levelling is Off
	Scart Prs Avl Off	Adjusts the Scart Prescaler value, when Automatic Volume Levelling is Off
	Scart Volume Avl Off	Adjusts the Scart Volume value, when Automatic Volume Levelling is On
	Avl	Enable/disable Automatic Volume Levelling System
	Sound	----
Aps Wss Test	Carrier	----
	LDLY	----
	AGC	----
	Programme	----
	VPS	----
	Scart Volume Avl Off	----
	Pdc Format 1	----
Name	Pdc Format 2	----
	Name	----
	WSS	----

## **SECTION 3**

### **DISASSEMBLY**

#### **3.1 DISASSEMBLY PROCEDURE**

##### **NOTE:**

- Make sure that the power cord is disconnected from the outlet.
- Pay special attention not to break or damage the parts.
- When removing each board, remove the connectors as required.
- Taking notes of the connecting points (connector numbers) makes service procedure manageable.
- Make sure that there is no bent or stain on the connectors before inserting, and firmly insert the connectors.

#### **3.1.1 REMOVING THE STAND UNIT**

- Remove the TFT DOOR SOCKET, AV DOOR SOCKET & CI COVER.
  - (1) Remove the 2 screws [A], then remove the FOOT TOP COVER.
  - (2) Remove the 4 screws [B], then remove the STAND UNIT.

#### **3.1.2 REMOVING THE HANDLE**

- Remove the STAND UNIT.
  - (1) Remove the 4 screws [C], then remove the HANDLE.

#### **3.1.3 REMOVING THE BACK COVER**

- Remove the STAND UNIT.
- Remove the HANDLE.
- (1) Remove the 5 screws [D], then remove the BACK COVER toward you.

#### **3.1.4 REMOVING THE BRACKET CI**

- Remove the STAND UNIT.
- Remove the HANDLE.
- Remove the BACK COVER.
  - (1) Remove the 4 screws [E], then remove the MMC CARD.
  - (2) Remove the 2 screws [F], then remove the BRACKET CI.

#### **3.1.5 REMOVING THE FAV PWB**

- Remove the STAND UNIT.
- Remove the HANDLE.
- Remove the BACK COVER.
  - (1) Remove the 2 screws [G], then remove the FAV PWB.

#### **3.1.6 REMOVING THE BRACKET SCART**

- Remove the STAND UNIT.
- Remove the HANDLE.
- Remove the BACK COVER.
  - (1) Remove the 2 screws [H], then remove the BRACKET SCART.

#### **3.1.7 REMOVING THE MAIN PWB**

- Remove the STAND UNIT.
- Remove the HANDLE.
- Remove the BACK COVER.
- Remove the BRACKET SCART.
  - (1) Remove the 9 screws [J], then remove the MAIN PWB.

#### **3.1.8 REMOVING THE LCD PANEL UNIT**

- Remove the STAND UNIT, HANDLE & BACK COVER.
- Remove the BRACKET SCART & MAIN PWB.
  - (1) Remove the 1 screw [K], then remove the DISPLAY SUPPORT from the FRONT COVER.
  - (2) Follow the same step when removing the other three DISPLAY SUPPORTS.
  - (3) Remove the 2 screws [L], then remove the MAIN FRAME with the LCD PANEL UNIT from the FRONT COVER.
  - (4) Remove the 7 screws [M], then remove the LCD PANEL UNIT from the MAIN FRAME.

##### **NOTE:**

- Pay special attention not to break or damage on the LCD PANEL face or frame.
- The LCD PANEL UNIT is fixed to the FRONT COVER (at the back side) by using double-side adhesive tapes. To remove the LCD PANEL UNIT, remove the adhesive tape on the FRONT PANEL slowly.

#### **3.1.9 REMOVING THE SIDE CONTROL PWB**

- Remove the STAND UNIT, HANDLE & BACK COVER.
  - (1) Remove the 2 screws [N], then remove the SIDE CONTROL PWB with the control knob.
  - (2) Remove the SIDE CONTROL PWB from the control knob.

#### **3.1.10 REMOVING THE LED PWB**

- Remove the STAND UNIT, HANDLE & BACK COVER.
  - (1) Remove the 1 screw [P], then remove the LED PWB from the FRONT COVER.

#### **3.1.11 REMOVING THE HEADPHONE PWB**

- Remove the STAND UNIT, HANDLE & BACK COVER.
  - (1) Remove the 1 screw [Q], then remove the HEADPHONE PWB from the FRONT COVER.

#### **3.1.12 REMOVING THE SPEAKERS**

- Remove the STAND UNIT, HANDLE & BACK COVER.
  - (1) Remove the 2 screws [R] from each speaker.
  - (2) Remove the SPEAKER from the FRONT COVER.
  - (3) Follow the same when removing the other hand speaker.

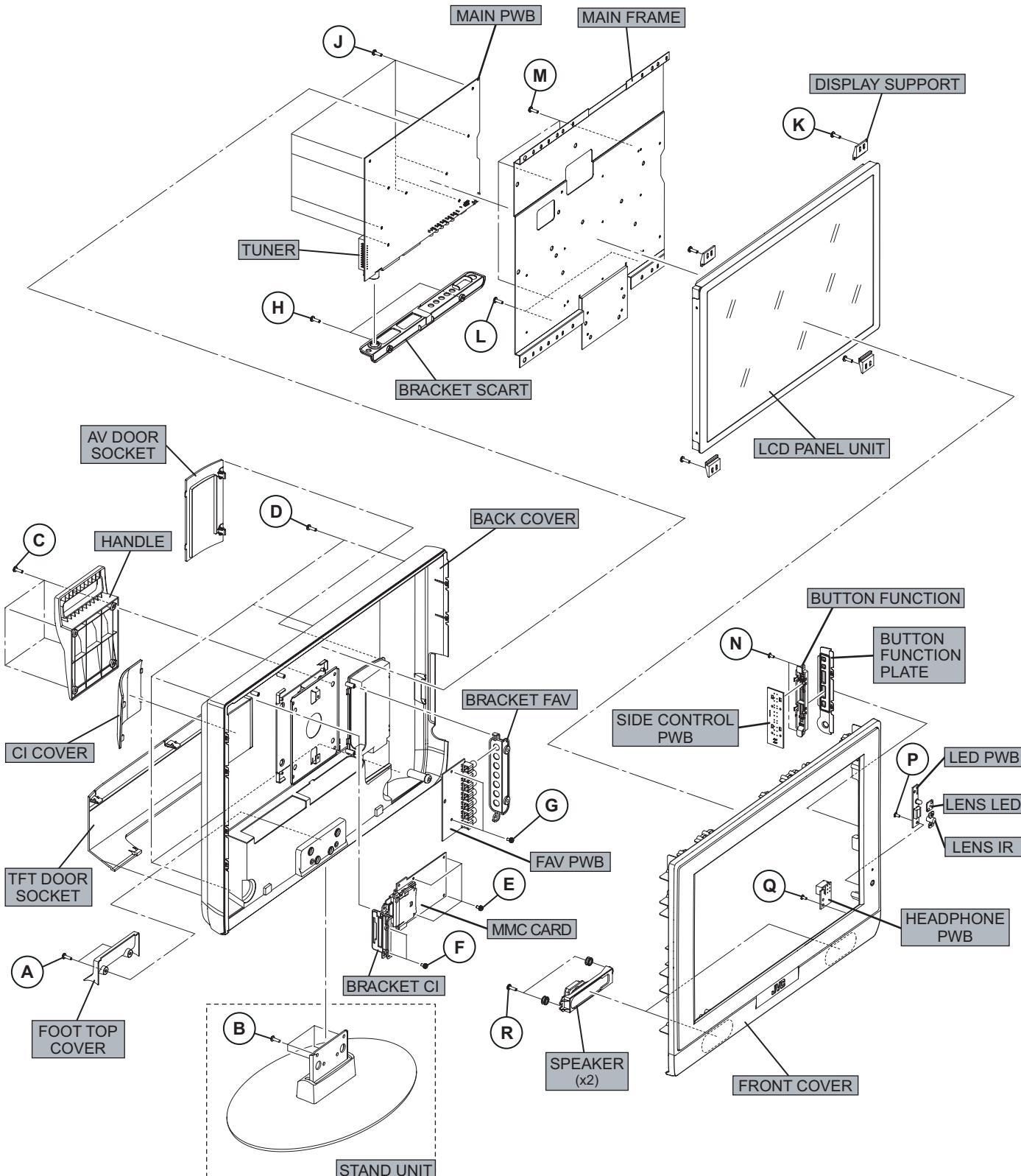


Fig.1

### 3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.
- This memory IC stores data for proper operation of the video and drive circuits.
- When replacing, be sure to use an IC containing this (initial value) data.

#### 3.2.1 SETTINGS OF FACTORY SHIPMENT

##### 3.2.1.1 BUTTON OPERATION

Setting item	Setting position
POWER	Off
TV/AV	TV

##### 3.2.1.3 REMOTE CONTROL MENU OPERATION

###### (1) PICTURE

Setting item	Setting position
MODE	Bright
Contrast	33 Step
Bright-1	26 Step
Sharpness	11 Step
Colour	36 Step
Colour Temp.	Cool
Noise Red.	Min

###### (2) SOUND

Setting item	Setting position
Volume	10 Step
Bass	16 Step
Treble	15 Step
Balance	16 Step
Hyper Sound	Off
Sound Mode	Auto

##### 3.2.1.2 REMOTE CONTROL DIRECT OPERATION

Setting item	Setting position
ZOOM	AUTO

##### (3) FEATURES

Setting item	Setting position
Sleep Timer	Off
Child Lock	Off
Language	English
EXT-2 Output	TV
Blue Back	Off

##### (4) Install [TV MODE]

Setting item	Setting position
Colour System	Auto
Decoder(EXT-2)	Off
VCR	Off

##### (5) Install [EXT MODE]

Setting item	Setting position
Colour System	Auto
VCR	Off

### 3.3 REPLACEMENT OF CHIP COMPONENT

#### 3.3.1 CAUTIONS

- (1) Avoid heating for more than 3 seconds.
- (2) Do not rub the electrodes and the resist parts of the pattern.
- (3) When removing a chip part, melt the solder adequately.
- (4) Do not reuse a chip part after removing it.

#### 3.3.2 SOLDERING IRON

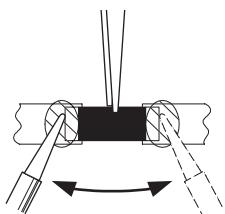
- (1) Use a high insulation soldering iron with a thin pointed end of it.
- (2) A 30w soldering iron is recommended for easily removing parts.

#### 3.3.3 REPLACEMENT STEPS

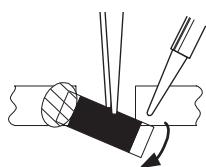
##### 1. How to remove Chip parts

###### [Resistors, capacitors, etc.]

- (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

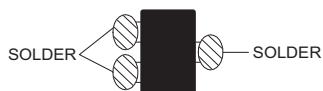


- (2) Shift with the tweezers and remove the chip part.

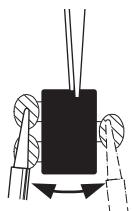


###### [Transistors, diodes, variable resistors, etc.]

- (1) Apply extra solder to each lead.



- (2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



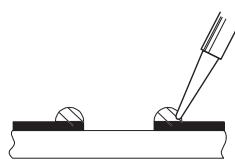
###### NOTE :

After removing the part, remove remaining solder from the pattern.

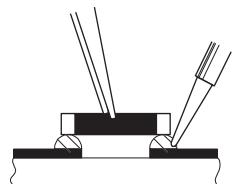
##### 2. How to install Chip parts

###### [Resistors, capacitors, etc.]

- (1) Apply solder to the pattern as indicated in the figure.



- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

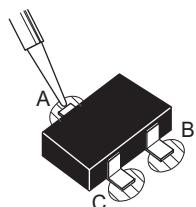


###### [Transistors, diodes, variable resistors, etc.]

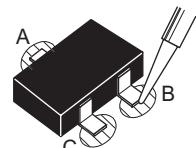
- (1) Apply solder to the pattern as indicated in the figure.

- (2) Grasp the chip part with tweezers and place it on the solder.

- (3) First solder lead **A** as indicated in the figure.



- (4) Then solder leads **B** and **C**.



## **SECTION 4 ADJUSTMENT**

This service manual does not describe ADJUSTMENT.

## **SECTION 5 TROUBLESHOOTING**

This service manual does not describe TROUBLESHOOTING.



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(No.YA221)

# PARTS LIST

## CAUTION

- The parts identified by the  $\Delta$  symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied.
- P.W. BOARD Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

## ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
CR	Carbon Resistor	C CAP.	Ceramic Capacitor
FR	Fusible Resistor	E CAP.	Electrolytic Capacitor
PR	Plate Resistor	M CAP.	Mylar Capacitor
VR	Variable Resistor	CH CAP.	Chip Capacitor
HV R	High Voltage Resistor	HV CAP.	High Voltage Capacitor
MF R	Metal Film Resistor	MF CAP.	Metalized Film Capacitor
MG R	Metal Glazed Resistor	MM CAP.	Metalized Mylar Capacitor
MP R	Metal Plate Resistor	MP CAP.	Metalized Polystyrol Capacitor
OM R	Metal Oxide Film Resistor	PP CAP.	Polypropylene Capacitor
CMF R	Coating Metal Film Resistor	PS CAP.	Polystyrol Capacitor
UNF R	Non-Flammable Resistor	TF CAP.	Thin Film Capacitor
CH V R	Chip Variable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH MG R	Chip Metal Glazed Resistor	TAN. CAP.	Tantalum Capacitor
COMP. R	Composition Resistor	CH C CAP.	Chip Ceramic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
		CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

RESISTORS									
F	G	J	K	M	N	R	H	Z	P
$\pm 1\%$	$\pm 2\%$	$\pm 5\%$	$\pm 10\%$	$\pm 20\%$	$\pm 30\%$	+30% -10%	+50% -10%	+80% -20%	+100% -0%

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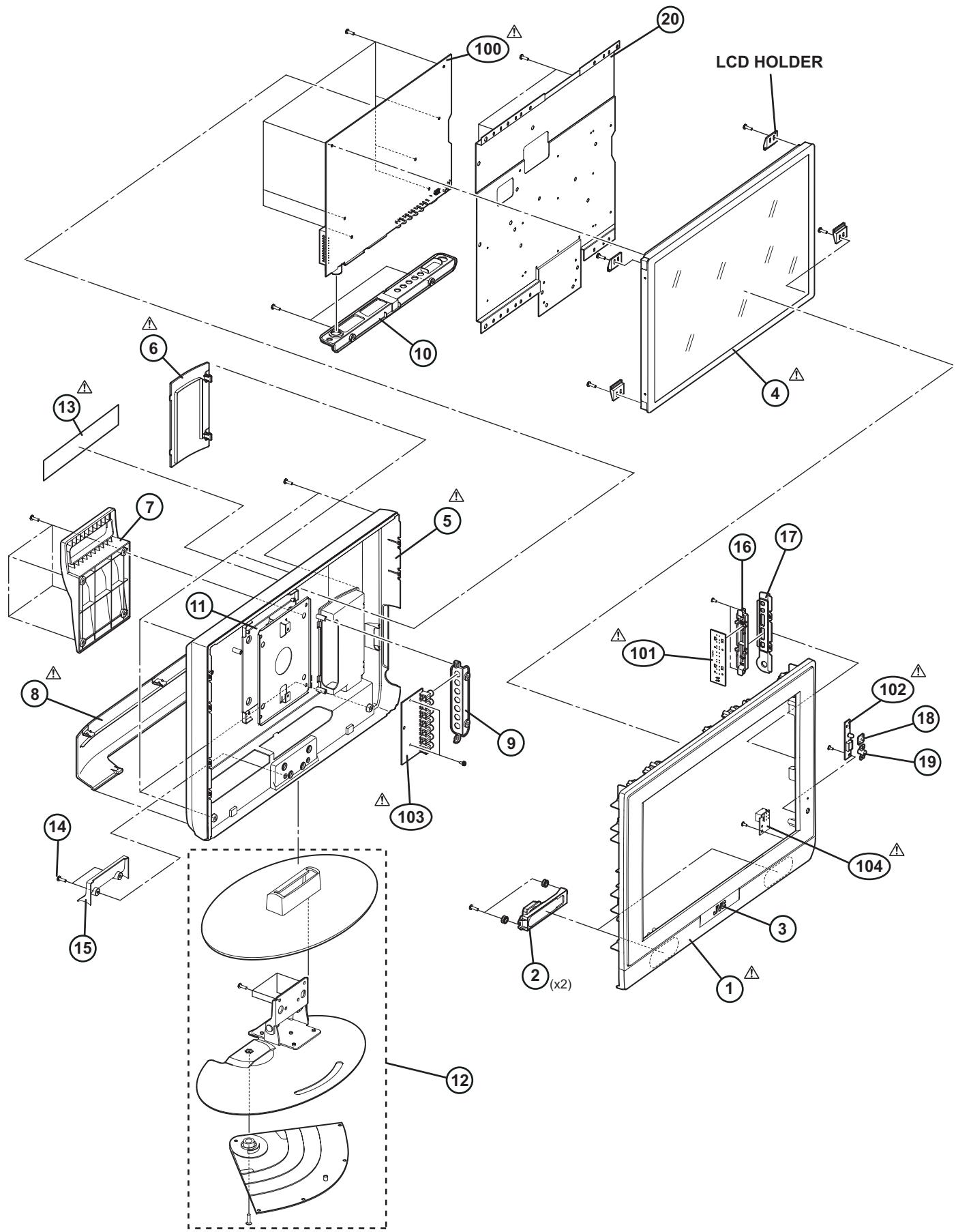
## USING P.W. BOARD & REMOTE CONTROL UNIT

P.W.B ASS'Y name	P.W.B ASS'Y No.
MAIN P.W.B	VE-20184629
SIDE CONTROL P.W.B	VE-20174624
LED P.W.B	VE-20174629
AV JACK P.W.B	VE-20177847
HEADPHONE JACK P.W.B	VE-20177874
REMOTE CONTROL UNIT	VE-30034033

## EXPLODED VIEW PARTS LIST

△	Ref.No.	Part No.	Part Name	Description	Local
△	1	VE-20189697	FRONT COVER		
	2	VE-30026613	SPEAKER	(x2)	
	3	VE-20181315	JVC MARK	JVC 47.0 X 375.0(TFT 2324W)	
△	4	VE-30031695	LCD PANEL		
△	5	VE-20184594	REAR COVER		
△	6	VE-20182428	DOOR SOCKET		
	7	VE-20182430	HANDLE		
△	8	VE-20182443	BACK COVER		
	9	VE-20182429	AV JACK FRAME		
	10	VE-20173333	MAIN FRAME		
	11	VE-35012930	HANG METAL		
	12	VE-20174579	FOOT ASSY		
△	13	VE-20183744	LABEL		
	14	VE-3500818	SCREW M3 x 9.5	(x2)	
	15	VE-20182432	FOOT COVER		
	16	VE-20182421	BUTTON FUNCTION		
	17	VE-20170335	BUTTON FUNCTION PLATE		
	18	VE-20170341	LENS LED		
	19	VE-20182420	LENS IR		
△	100	VE-20184629	MAIN PWB		
△	101	VE-20174624	SIDE CONTROL PWB		
△	102	VE-20174629	LED PWB		
△	103	VE-20177847	AV JACK PWB		
△	104	VE-20177874	HEADPHONE JACK PWB		

## EXPLODED VIEW



# PRINTED WIRING BOARD PARTS LIST

△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
IC1	VE-30001670	PREAMPLIFIER TFMS5360		Q700	VE-30001458	TRANSISTOR SMD	
IC100	VE-30017001	IC		Q701	VE-30001457	TRANSISTOR SMD	
IC100	VE-30020865	IC		Q702	VE-30001457	TRANSISTOR SMD	
IC101	VE-30032066	IC		Q703	VE-30001457	TRANSISTOR SMD	
IC102	VE-30018006	IC		Q704	VE-30001457	TRANSISTOR SMD	
IC104	VE-30019132	IC		Q708	VE-30001458	TRANSISTOR SMD	
IC105	VE-30034805	IC		Q709	VE-30001457	TRANSISTOR SMD	
IC106	VE-30017956	IC		Q900	VE-30001457	TRANSISTOR SMD	
IC107	VE-30019372	IC		Q901	VE-30001457	TRANSISTOR SMD	
IC108	VE-30027533	IC		Q902	VE-30001454	TRANSISTOR	
IC110	VE-30007366	IC		Q903	VE-30001457	TRANSISTOR SMD	
IC110	VE-30010780	IC		Q904	VE-30007798	TRANSISTOR SMD	
IC110	VE-30010817	IC		Q905	VE-30007798	TRANSISTOR SMD	
IC110	VE-30016427	IC		Q1120	VE-30001457	TRANSISTOR SMD	
IC120	VE-30012800	IC		Q1121	VE-30001457	TRANSISTOR SMD	
IC130	VE-30010056	IC		Q1206	VE-30012551	TRANSISTOR SMD	
IC130	VE-30014088	IC		Q1207	VE-30012552	TRANSISTOR SMD	
IC130	VE-30014088	IC		Q1400	VE-30016424	TRANSISTOR	
IC130	VE-30014162	IC		Q1401	VE-30016424	TRANSISTOR	
IC140	VE-30020607	IC		Q1402	VE-30016424	TRANSISTOR	
IC140	VE-30020849	IC		Q1403	VE-30001457	TRANSISTOR SMD	
IC160	VE-30014343	IC		Q1600	VE-30001457	TRANSISTOR SMD	
IC160	VE-30017472	IC		D1	VE-30016020	DIODE	
IC160	VE-30017473	IC		D2	VE-30019678	LED	RED/GREEN
IC160	VE-30017473	IC		D103	VE-30007169	DIODE	
IC300	VE-30018652	IC		D105	VE-30007169	DIODE	
IC301	VE-30013571	IC		D107	VE-30007169	DIODE	
IC302	VE-20193393	IC	(SERVICE)	D108	VE-30025773	DIODE SMD	
IC305	VE-30010689	DIODE SMD		D109	VE-30025773	DIODE SMD	
IC306	VE-30010689	DIODE SMD		D116	VE-30007169	DIODE	
IC400	VE-30015059	IC		D117	VE-30007169	DIODE	
IC402	VE-30004999	IC		D118	VE-30007169	DIODE	
IC403	VE-30019372	IC		D119	VE-30007169	DIODE	
IC500	VE-30021083	TDA9886T/S024/REEL13//V4 ROHS		D120	VE-30007760	DIODE SMD	
IC600	VE-30013686	IC		D1X1	VE-30025773	DIODE SMD	
IC700	VE-30018263	IC		D300	VE-30012412	DIODE SMD	
IC701	VE-30010024	IC		D301	VE-30001285	DIODE SMD	
IC702	VE-30027663	IC		D302	VE-30001285	DIODE SMD	
IC705	VE-30001285	DIODE SMD		D305	VE-30001285	DIODE SMD	
IC706	VE-30024945	IC-AUDIO SWITCH TEA6422D		D306	VE-30001285	DIODE SMD	
IC800	VE-30017847	00 DS90C385		D307	VE-30001285	DIODE SMD	
IC901	VE-30027613	IC		D500	VE-30001285	DIODE SMD	
IC904	VE-30027612	IC		D501	VE-30012411	DIODE SMD	
IC906	VE-30018326	IC		D600	VE-30007760	DIODE SMD	
IC907	VE-30027635	IC		D700	VE-30007761	DIODE SMD	
IC908	VE-30014344	TRANSISTOR		D701	VE-30001285	DIODE SMD	
IC910	VE-30007739	IC		D702	VE-30001285	DIODE SMD	
IC911	VE-30030067	IC		D703	VE-30001285	DIODE SMD	
IC912	VE-30018574	DIODE		D704	VE-30007760	DIODE SMD	
IC913	VE-30018574	DIODE		D705	VE-30007760	DIODE SMD	
IC914	VE-30018574	DIODE		D706	VE-30007760	DIODE SMD	
IC915	VE-30018574	DIODE		D707	VE-30007760	DIODE SMD	
				D708	VE-30007760	DIODE SMD	
				D709	VE-30007760	DIODE SMD	
Q100	VE-30001457	TRANSISTOR SMD		D711	VE-30025773	DIODE SMD	
Q101	VE-30018060	TRANSISTOR		D712	VE-30025773	DIODE SMD	
Q103	VE-30001457	TRANSISTOR SMD		D714	VE-30025773	DIODE SMD	
Q104	VE-30001457	TRANSISTOR SMD		D715	VE-30007760	DIODE SMD	
Q105	VE-30001457	TRANSISTOR SMD		D716	VE-30025773	DIODE SMD	
Q300	VE-30001458	TRANSISTOR SMD		D717	VE-30025773	DIODE SMD	
Q301	VE-30001457	TRANSISTOR SMD		D719	VE-30001285	DIODE SMD	
Q302	VE-30001457	TRANSISTOR SMD		D720	VE-30007760	DIODE SMD	
Q303	VE-30001457	TRANSISTOR SMD		D721	VE-30025773	DIODE SMD	
Q304	VE-30001457	TRANSISTOR SMD		D722	VE-30025773	DIODE SMD	
Q305	VE-30001457	TRANSISTOR SMD		D723	VE-30025773	DIODE SMD	
Q306	VE-30001457	TRANSISTOR SMD		D724	VE-30018574	DIODE	
Q307	VE-30001457	TRANSISTOR SMD		D725	VE-30007760	DIODE SMD	
Q308	VE-30001458	TRANSISTOR SMD		D726	VE-30007760	DIODE SMD	
Q309	VE-30001457	TRANSISTOR SMD		D902	VE-30001285	DIODE SMD	
Q311	VE-30001423	TRANSISTOR		D903	VE-30001343	DIODE	
Q313	VE-30001457	TRANSISTOR SMD		D905	VE-30001285	DIODE SMD	
Q314	VE-30001457	TRANSISTOR SMD		D1100	VE-30010689	DIODE SMD	
Q315	VE-30001457	TRANSISTOR SMD		D1101	VE-30010689	DIODE SMD	
Q316	VE-30001457	TRANSISTOR SMD		D1400	VE-30016425	DIODE	
Q317	VE-30001457	TRANSISTOR SMD		C1	VE-30000371	E CAPACITOR	22uF 50V M
Q318	VE-30001457	TRANSISTOR SMD		C100	VE-30012566	CAPACITOR SMD	22pF 50V J
Q400	VE-30001457	TRANSISTOR SMD		C100	VE-30012589	CAPACITOR SMD	4.7nF 50V K
Q501	VE-30001457	TRANSISTOR SMD		C101	VE-30012566	CAPACITOR SMD	22pF 50V J
Q502	VE-30001457	TRANSISTOR SMD		C101	VE-30012589	CAPACITOR SMD	4.7nF 50V K
Q600	VE-30001457	TRANSISTOR SMD		C102	VE-30000190	C CAPACITOR	100pF 50V J CH
Q601	VE-30001457	TRANSISTOR SMD		C103	VE-30000190	C CAPACITOR	100pF 50V J CH
Q602	VE-30001457	TRANSISTOR SMD		C104	VE-30000190	C CAPACITOR	100pF 50V J CH
Q603	VE-30001457	TRANSISTOR SMD					

▲Ref No.	Part No.	Part Name	Description	Local	▲Ref No.	Part No.	Part Name	Description	Local
C105	VE-30000190	C CAPACITOR	100pF 50V J CH		C429	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C106	VE-30000190	C CAPACITOR	100pF 50V J CH		C431	VE-30000315	CAPACITOR SMD	220nF 25V Z	
C107	VE-30000190	C CAPACITOR	100pF 50V J CH		C432	VE-30000315	CAPACITOR SMD	220nF 25V Z	
C108	VE-30000190	C CAPACITOR	100pF 50V J CH		C433	VE-30000315	CAPACITOR SMD	220nF 25V Z	
C108	VE-30012582	CAPACITOR SMD	10nF 50V K R		C434	VE-30012567	CAPACITOR SMD	220pF 50V J	
C109	VE-30012582	CAPACITOR SMD	10nF 50V K R		C435	VE-30012567	CAPACITOR SMD	220pF 50V J	
C110	VE-30012582	CAPACITOR SMD	10nF 50V K R		C436	VE-30012567	CAPACITOR SMD	220pF 50V J	
C111	VE-30012582	CAPACITOR SMD	10nF 50V K R		C437	VE-30007082	CAPACITOR MKT	680nF 63V J	
C113	VE-30012582	CAPACITOR SMD	10nF 50V K R		C438	VE-30000371	E CAPACITOR	22uF 50V M	
C115	VE-30000371	E CAPACITOR	22uF 50V M		C440	VE-30012569	CAPACITOR SMD	100uF 16V M	
C120	VE-30016654	CAPACITOR SMD	100nF 16V K R		C442	VE-30012569	CAPACITOR SMD	33pF 50V J	
C121	VE-30016654	CAPACITOR SMD	100nF 16V K R		C449	VE-30000345	E CAPACITOR	10uF 50V M	
C122	VE-30016654	CAPACITOR SMD	100nF 16V K R		C493	VE-30000294	CAPACITOR SMD	100nF 50V K	
C123	VE-30016654	CAPACITOR SMD	100nF 16V K R		C494	VE-30012574	CAPACITOR SMD	470pF 50V J	
C125	VE-30016654	CAPACITOR SMD	100nF 16V K R		C495	VE-30012574	CAPACITOR SMD	470pF 50V J	
C126	VE-30016654	CAPACITOR SMD	100nF 16V K R		C503	VE-30000345	E CAPACITOR	10uF 50V M	
C129	VE-30016654	CAPACITOR SMD	100nF 16V K R		C504	VE-30000407	E CAPACITOR	470uF 16V M	
C131	VE-30016654	CAPACITOR SMD	100nF 16V K R		C505	VE-30000400	E CAPACITOR	47uF 50V M	
C132	VE-30012581	CAPACITOR SMD	1nF 50V K R		C506	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C133	VE-30012589	CAPACITOR SMD	4.7nF 50V K		C507	VE-30012572	CAPACITOR SMD	390pF 50V J	
C134	VE-30012589	CAPACITOR SMD	4.7nF 50V K		C508	VE-30000109	CAPACITOR MKT	470nF 63V J	
C136	VE-30016654	CAPACITOR SMD	100nF 16V K R		C509	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C138	VE-30000371	E CAPACITOR	22uF 50V M		C510	VE-30012566	CAPACITOR SMD	22pF 50V J	
C139	VE-30000371	E CAPACITOR	22uF 50V M		C511	VE-30000109	CAPACITOR MKT	470nF 63V J	
C146	VE-30000109	CAPACITOR MKT	470nF 63V J		C513	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C147	VE-30016654	CAPACITOR SMD	100nF 16V K R		C514	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C148	VE-30012575	CAPACITOR SMD	4.7pF 50V C CH		C517	VE-30012569	CAPACITOR SMD	33pF 50V J	
C149	VE-30012575	CAPACITOR SMD	4.7pF 50V C CH		C519	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C153	VE-30012567	CAPACITOR SMD	220pF 50V J		C520	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C154	VE-30012567	CAPACITOR SMD	220pF 50V J		C522	VE-30000315	CAPACITOR SMD	220nF 25V Z	
C155	VE-30012567	CAPACITOR SMD	220pF 50V J		C523	VE-30000371	E CAPACITOR	22uF 50V M	
C156	VE-30000371	E CAPACITOR	22uF 50V M		C526	VE-30000345	E CAPACITOR	10uF 50V M	
C158	VE-30012567	CAPACITOR SMD	220pF 50V J		C600	VE-30000352	E CAPACITOR	100uF 16V M	
C160	VE-30012567	CAPACITOR SMD	220pF 50V J		C601	VE-30000074	CAPACITOR MKT	100nF 63V J	
C161	VE-30012567	CAPACITOR SMD	220pF 50V J		C602	VE-30000074	CAPACITOR MKT	100nF 63V J	
C162	VE-30000371	E CAPACITOR	22uF 50V M		C603	VE-30000074	CAPACITOR MKT	100nF 63V J	
C164	VE-30012567	CAPACITOR SMD	220pF 50V J		C606	VE-30000074	CAPACITOR MKT	100nF 63V J	
C166	VE-30012567	CAPACITOR SMD	220pF 50V J		C607	VE-30012569	CAPACITOR SMD	33pF 50V J	
C169	VE-30012567	CAPACITOR SMD	220pF 50V J		C615	VE-30012569	CAPACITOR SMD	33pF 50V J	
C170	VE-30012567	CAPACITOR SMD	220pF 50V J		C616	VE-30000074	CAPACITOR MKT	100nF 63V J	
C172	VE-30012567	CAPACITOR SMD	220pF 50V J		C701	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C175	VE-30012567	CAPACITOR SMD	220pF 50V J		C702	VE-30000352	E CAPACITOR	100uF 16V M	
C177	VE-30000371	E CAPACITOR	22uF 50V M		C703	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C185	VE-30000352	E CAPACITOR	100uF 16V M		C704	VE-30012589	CAPACITOR SMD	4.7nF 50V K	
C187	VE-30012576	CAPACITOR SMD	56pF 50V J CH		C705	VE-30012589	CAPACITOR SMD	4.7nF 50V K	
C190	VE-30016654	CAPACITOR SMD	100nF 16V K R		C706	VE-30012589	CAPACITOR SMD	4.7nF 50V K	
C193	VE-30000375	E CAPACITOR	220uF 16V M		C707	VE-30012589	CAPACITOR SMD	4.7nF 50V K	
C217	VE-30012581	CAPACITOR SMD	1nF 50V K R		C709	VE-30016126	CAPACITOR SMD	220nF 16V K R	
C225	VE-30016126	CAPACITOR SMD	220nF 16V K R		C710	VE-30016126	CAPACITOR SMD	220nF 16V K R	
C300	VE-30000352	E CAPACITOR	100uF 16V M		C711	VE-30016126	CAPACITOR SMD	220nF 16V K R	
C302	VE-30000371	E CAPACITOR	22uF 50V M		C712	VE-30016126	CAPACITOR SMD	220nF 16V K R	
C305	VE-30000371	E CAPACITOR	22uF 50V M		C713	VE-30012579	CAPACITOR SMD	82pF 50V J	
C308	VE-30000371	E CAPACITOR	22uF 50V M		C715	VE-30000393	E CAPACITOR	3.3uF 50V M	
C314	VE-30000109	CAPACITOR MKT	470nF 63V J		C716	VE-30000345	E CAPACITOR	10uF 50V M	
C316	VE-30000352	E CAPACITOR	100uF 16V M		C717	VE-30000345	E CAPACITOR	10uF 50V M	
C317	VE-30012569	CAPACITOR SMD	33pF 50V J		C718	VE-30000345	E CAPACITOR	10uF 50V M	
C318	VE-30012569	CAPACITOR SMD	33pF 50V J		C719	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C319	VE-30000371	E CAPACITOR	22uF 50V M		C720	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C324	VE-30000371	E CAPACITOR	22uF 50V M		C721	VE-30012565	CAPACITOR SMD	1.8pF 50V J CH	
C325	VE-30012607	CAPACITOR SMD	150pF 50V J		C722	VE-30012565	CAPACITOR SMD	1.8pF 50V J CH	
C326	VE-30012569	CAPACITOR SMD	33pF 50V J		C723	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C328	VE-30000352	E CAPACITOR	100uF 16V M		C724	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C334	VE-30000354	E CAPACITOR	100uF 35V M		C725	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C336	VE-30012560	CAPACITOR SMD	100pF 50V J		C726	VE-30012579	CAPACITOR SMD	82pF 50V J	
C343	VE-30012560	CAPACITOR SMD	100pF 50V J		C729	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C344	VE-30012560	CAPACITOR SMD	100pF 50V J		C730	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C345	VE-30012560	CAPACITOR SMD	100pF 50V J		C731	VE-30012607	CAPACITOR SMD	150pF 50V J	
C346	VE-30000294	CAPACITOR SMD	100nF 50V K		C732	VE-30016126	CAPACITOR SMD	220nF 16V K R	
C401	VE-30012581	CAPACITOR SMD	1nF 50V K R		C733	VE-30016126	CAPACITOR SMD	220nF 16V K R	
C404	VE-30012613	CAPACITOR SMD	3.3pF 50V C CH		C735	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C405	VE-30012613	CAPACITOR SMD	3.3pF 50V C CH		C736	VE-30000352	E CAPACITOR	100uF 16V M	
C406	VE-30000315	CAPACITOR SMD	220nF 25V Z		C737	VE-30012589	CAPACITOR SMD	4.7nF 50V K	
C407	VE-30012581	CAPACITOR SMD	1nF 50V K R		C738	VE-30000352	E CAPACITOR	100uF 16V M	
C408	VE-30012572	CAPACITOR SMD	390pF 50V J		C739	VE-30000362	E CAPACITOR	1uF 50V M	
C409	VE-30000345	E CAPACITOR	10uF 50V M		C740	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C411	VE-30000068	CAPACITOR MKT	1nF 63V K		C741	VE-30012589	CAPACITOR SMD	4.7nF 50V K	
C412	VE-30007082	CAPACITOR MKT	680nF 63V J		C742	VE-30000371	E CAPACITOR	22uF 50V M	
C413	VE-30007082	CAPACITOR MKT	680nF 63V J		C743	VE-30000371	E CAPACITOR	22uF 50V M	
C414	VE-30012582	CAPACITOR SMD	10nF 50V K R		C744	VE-30000371	E CAPACITOR	22uF 50V M	
C415	VE-30000345	E CAPACITOR	10uF 50V M		C745	VE-30000371	E CAPACITOR	22uF 50V M	
C416	VE-30012590	CAPACITOR SMD	47nF 50V K		C746	VE-30012567	CAPACITOR SMD	220pF 50V J	
C420	VE-30000294	CAPACITOR SMD	100nF 50V K		C747	VE-30012574	CAPACITOR SMD	470pF 50V J	
C421	VE-30000294	CAPACITOR SMD	100nF 50V K		C748	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C422	VE-30000294	CAPACITOR SMD	100nF 50V K		C750	VE-30012576	CAPACITOR SMD	56pF 50V J CH	
C425	VE-30000315	CAPACITOR SMD	220nF 25V Z		C751	VE-30000407	E CAPACITOR	470uF 16V M	
C426	VE-30012581	CAPACITOR SMD	1nF 50V K R		C752	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C427	VE-30012572	CAPACITOR SMD	390pF 50V J		C753	VE-30012581	CAPACITOR SMD	1nF 50V K R	

ΔRef No.	Part No.	Part Name	Description	Local	ΔRef No.	Part No.	Part Name	Description	Local
C754	VE-30012574	CAPACITOR SMD	470pF 50V J		C927	VE-30000294	CAPACITOR SMD	100nF 50V K	
C755	VE-30012574	CAPACITOR SMD	470pF 50V J		C928	VE-30000345	E CAPACITOR	10uF 50V M	
C756	VE-30012581	CAPACITOR SMD	1nF 50V K R		C929	VE-30000294	CAPACITOR SMD	100nF 50V K	
C757	VE-30012581	CAPACITOR SMD	1nF 50V K R		C930	VE-30000371	E CAPACITOR	22uF 50V M	
C758	VE-30016126	CAPACITOR SMD	220nF 16V K R		C932	VE-30000294	CAPACITOR SMD	100nF 50V K	
C759	VE-30016126	CAPACITOR SMD	220nF 16V K R		C933	VE-30000294	CAPACITOR SMD	100nF 50V K	
C760	VE-30012581	CAPACITOR SMD	1nF 50V K R		C934	VE-30031594	E CAPACITOR	2200uF 10V M 10X20 LL	
C761	VE-30012581	CAPACITOR SMD	1nF 50V K R		C937	VE-30000371	E CAPACITOR	22uF 50V M	
C762	VE-30012589	CAPACITOR SMD	4.7nF 50V K		C938	VE-30000355	E CAPACITOR	100uF 50V M	
C763	VE-30012589	CAPACITOR SMD	4.7nF 50V K		C940	VE-30000359	E CAPACITOR	1000uF 16V M	
C764	VE-30012589	CAPACITOR SMD	4.7nF 50V K		C942	VE-30000352	E CAPACITOR	100uF 16V M	
C765	VE-30012589	CAPACITOR SMD	4.7nF 50V K		C1025	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C766	VE-30012607	CAPACITOR SMD	150pF 50V J		C1041	VE-30000407	E CAPACITOR	470uF 16V M	
C768	VE-30012607	CAPACITOR SMD	150pF 50V J		C1053	VE-30000375	E CAPACITOR	220uF 16V M	
C769	VE-30000371	E CAPACITOR	22uF 50V M		C1101	VE-30010555	CAPACITOR SMD	1uF 16V K R	
C770	VE-30000371	E CAPACITOR	22uF 50V M		C1102	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C771	VE-30016126	CAPACITOR SMD	220nF 16V K R		C1103	VE-30000345	E CAPACITOR	10uF 50V M	
C772	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1104	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C773	VE-30016126	CAPACITOR SMD	220nF 16V K R		C1109	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C774	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1110	VE-30012564	CAPACITOR SMD	18pF 50V J	
C775	VE-30000345	E CAPACITOR	10uF 50V M		C1111	VE-30012564	CAPACITOR SMD	18pF 50V J	
C776	VE-30010555	CAPACITOR SMD	1uF 16V K R		C1118	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C777	VE-30000294	CAPACITOR SMD	100nF 50V K		C1120	VE-30000294	CAPACITOR SMD	100nF 50V K	
C778	VE-30000294	CAPACITOR SMD	100nF 50V K		C1122	VE-30012567	CAPACITOR SMD	220pF 50V J	
C779	VE-30012567	CAPACITOR SMD	220pF 50V J		C1127	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C780	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1132	VE-30000352	E CAPACITOR	100uF 16V M	
C781	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1133	VE-30000352	E CAPACITOR	100uF 16V M	
C782	VE-30000294	CAPACITOR SMD	100nF 50V K		C1134	VE-30000352	E CAPACITOR	100uF 16V M	
C783	VE-30000294	CAPACITOR SMD	100nF 50V K		C1135	VE-30000345	E CAPACITOR	10uF 50V M	
C784	VE-30000345	E CAPACITOR	10uF 50V M		C1137	VE-30000345	E CAPACITOR	10uF 50V M	
C785	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1145	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C786	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1146	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C787	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1147	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C788	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1204	VE-30000353	E CAPACITOR	100uF 25V M	
C789	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1211	VE-30000384	E CAPACITOR	2.2uF 50V M	
C790	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1212	VE-30000384	E CAPACITOR	2.2uF 50V M	
C791	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1218	VE-30012576	CAPACITOR SMD	56pF 50V J CH	
C792	VE-30010555	CAPACITOR SMD	1uF 16V K R		C1220	VE-30012576	CAPACITOR SMD	56pF 50V J CH	
C793	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1221	VE-30012567	CAPACITOR SMD	220pF 50V J	
C794	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1236	VE-30000352	E CAPACITOR	100uF 16V M	
C795	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1252	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C796	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1253	VE-30012567	CAPACITOR SMD	220pF 50V J	
C797	VE-30000294	CAPACITOR SMD	100nF 50V K		C1254	VE-30012567	CAPACITOR SMD	220pF 50V J	
C798	VE-30012567	CAPACITOR SMD	220pF 50V J		C1255	VE-30012567	CAPACITOR SMD	220pF 50V J	
C799	VE-30012568	CAPACITOR SMD	270pF 50V J		C1314	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C808	VE-30012574	CAPACITOR SMD	470pF 50V J		C1315	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C808	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1316	VE-30016654	CAPACITOR SMD	100nF 16V K R	
C809	VE-30012574	CAPACITOR SMD	470pF 50V J		C1401	VE-30000400	E CAPACITOR	47uF 50V M	
C810	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1404	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C811	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1406	VE-30000345	E CAPACITOR	10uF 50V M	
C812	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1409	VE-30012560	CAPACITOR SMD	100pF 50V J	
C813	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1410	VE-30000352	E CAPACITOR	100uF 16V M	
C814	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1411	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C815	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1412	VE-30000315	CAPACITOR SMD	220nF 25V Z	
C816	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1414	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C817	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1415	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C818	VE-30012576	CAPACITOR SMD	56pF 50V J CH		C1420	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C823	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1429	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C827	VE-30012574	CAPACITOR SMD	470pF 50V J		C1433	VE-30012582	CAPACITOR SMD	10nF 50V K R	
C828	VE-30012574	CAPACITOR SMD	470pF 50V J		C1435	VE-30012559	CAPACITOR SMD	10pF 50V D COG	
C829	VE-30012574	CAPACITOR SMD	470pF 50V J		C1436	VE-30012559	CAPACITOR SMD	10pF 50V D COG	
C830	VE-30012574	CAPACITOR SMD	470pF 50V J		C1445	VE-30012560	CAPACITOR SMD	100pF 50V J	
C831	VE-30012574	CAPACITOR SMD	470pF 50V J		C1446	VE-30012560	CAPACITOR SMD	100pF 50V J	
C832	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1452	VE-30000352	E CAPACITOR	100uF 16V M	
C833	VE-30020694	CAPACITOR SMD	1uF 16V Z Y5V		C1453	VE-30000352	E CAPACITOR	100uF 16V M	
C834	VE-30000371	E CAPACITOR	22uF 50V M		C1460	VE-30012579	CAPACITOR SMD	82pF 50V J	
C835	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1461	VE-30012579	CAPACITOR SMD	82pF 50V J	
C836	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1462	VE-30012607	CAPACITOR SMD	150pF 50V J	
C846	VE-30000353	E CAPACITOR	100uF 25V M		C1463	VE-30014180	CAPACITOR SMD	180pF 50V J	
C858	VE-30012569	CAPACITOR SMD	33pF 50V J		C1464	VE-30012559	CAPACITOR SMD	10pF 50V D COG	
C859	VE-30012569	CAPACITOR SMD	33pF 50V J		C1471	VE-30012565	CAPACITOR SMD	1.8pF 50V J CH	
C860	VE-30012569	CAPACITOR SMD	33pF 50V J		C1472	VE-30000384	E CAPACITOR	2.2uF 50V M	
C863	VE-30012581	CAPACITOR SMD	1nF 50V K R		C1473	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C866	VE-30000345	E CAPACITOR	10uF 50V M		C1474	VE-30012581	CAPACITOR SMD	1nF 50V K R	
C867	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1475	VE-30000352	E CAPACITOR	100uF 16V M	
C868	VE-30012582	CAPACITOR SMD	10nF 50V K R		C1476	VE-30000352	E CAPACITOR	100uF 16V M	
C900	VE-30000354	E CAPACITOR	100uF 35V M		C1480	VE-30000294	CAPACITOR SMD	100nF 50V K	
C903	VE-30000354	E CAPACITOR	100uF 35V M		C1481	VE-30000375	E CAPACITOR	220uF 16V M	
C908	VE-30000359	E CAPACITOR	1000uF 16V M		C1484	VE-30000352	E CAPACITOR	100uF 16V M	
C910	VE-30000354	E CAPACITOR	100uF 35V M		C1485	VE-30000375	E CAPACITOR	220uF 16V M	
C912	VE-30000359	E CAPACITOR	1000uF 16V M		C1486	VE-30000352	E CAPACITOR	100uF 16V M	
C920	VE-30000354	E CAPACITOR	100uF 35V M		C1489	VE-30020694	CAPACITOR SMD	100nF 50V K	
C922	VE-30000359	E CAPACITOR	1000uF 16V M		C1800	VE-30000294	CAPACITOR SMD	100nF 50V K	
C923	VE-30016654	CAPACITOR SMD	100nF 16V K R		C1801	VE-30000294	CAPACITOR SMD	100nF 50V K	
C924	VE-30012576	CAPACITOR SMD	56pF 50V J CH		C1802	VE-30000294	CAPACITOR SMD	100nF 50V K	
C925	VE-30012560	CAPACITOR SMD	100pF 50V J		C1803	VE-30000345	E CAPACITOR	10uF 50V M	
C926	VE-30000371	E CAPACITOR	22uF 50V M		C1805	VE-30012581	CAPACITOR SMD	1nF 50V K R	

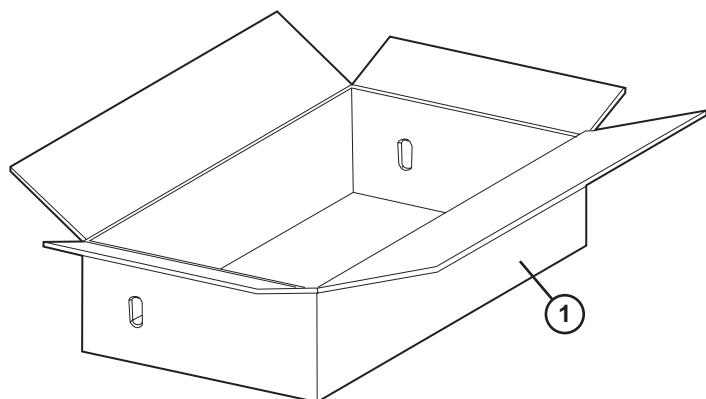
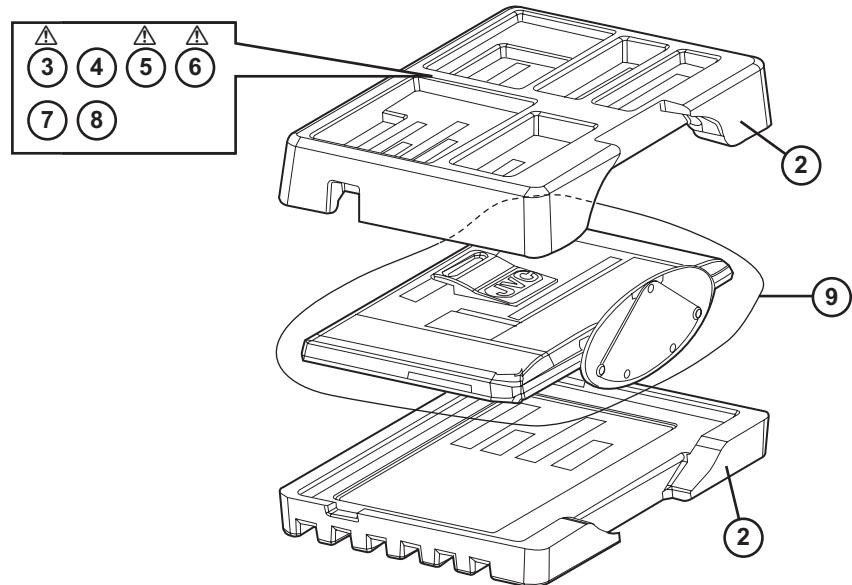
▲Ref No.	Part No.	Part Name	Description	Local	▲Ref No.	Part No.	Part Name	Description	Local
C1806	VE-30000355	E CAPACITOR	100uF 50V M		R168	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1807	VE-30000352	E CAPACITOR	100uF 16V M		R169	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1817	VE-30016126	CAPACITOR SMD	220nF 16V K R		R170	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1818	VE-30016126	CAPACITOR SMD	220nF 16V K R		R172	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1819	VE-30000352	E CAPACITOR	100uF 16V M		R173	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1820	VE-30012574	CAPACITOR SMD	470pF 50V J		R174	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1821	VE-30012574	CAPACITOR SMD	470pF 50V J		R175	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1822	VE-30016126	CAPACITOR SMD	220nF 16V K R		R176	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1823	VE-30016126	CAPACITOR SMD	220nF 16V K R		R177	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1824	VE-30016126	CAPACITOR SMD	220nF 16V K R		R178	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1825	VE-30016126	CAPACITOR SMD	220nF 16V K R		R179	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1826	VE-30016126	CAPACITOR SMD	220nF 16V K R		R180	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1827	VE-30016126	CAPACITOR SMD	220nF 16V K R		R181	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1828	VE-30016126	CAPACITOR SMD	220nF 16V K R		R182	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1829	VE-30016126	CAPACITOR SMD	220nF 16V K R		R185	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1830	VE-30000371	E CAPACITOR	22uF 50V M		R193	VE-30012657	RESISTOR SMD	1/16W 1K J	
C1832	VE-30016126	CAPACITOR SMD	220nF 16V K R		R199	VE-30012641	RESISTOR SMD	1/16W 10K J	
C1833	VE-30016126	CAPACITOR SMD	220nF 16V K R		R300	VE-30012657	RESISTOR SMD	1/16W 1K J	
C1834	VE-30000352	E CAPACITOR	100uF 16V M		R301	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
C1835	VE-30000359	E CAPACITOR	1000uF 16V M		R302	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
C1836	VE-30016126	CAPACITOR SMD	220nF 16V K R		R303	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
C1837	VE-30016126	CAPACITOR SMD	220nF 16V K R		R304	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R1	VE-30000689	RESISTOR CF	1/4W 3.9K J		R305	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R1	VE-30012510	RESISTOR SMD	1/16W 100R J		R306	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R2	VE-30000526	RESISTOR CF	1/4W 1.5K J		R307	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R3	VE-30000770	RESISTOR CF	1/4W 680R J		R308	VE-30012657	RESISTOR SMD	1/16W 1K J	
R4	VE-30000712	RESISTOR CF	1/4W 470R J		R309	VE-30012669	RESISTOR SMD	1/16W 22K J	
R5	VE-30000622	RESISTOR CF	1/4W 270R J		R310	VE-30012510	RESISTOR SMD	1/16W 100R J	
R100	VE-30012713	RESISTOR SMD	1/16W 75R J		R311	VE-30012510	RESISTOR SMD	1/16W 100R J	
R100	VE-30014128	RESISTOR SMD	1/16W 33R J		R312	VE-30012510	RESISTOR SMD	1/16W 100R J	
R101	VE-30012713	RESISTOR SMD	1/16W 75R J		R313	VE-30012705	RESISTOR SMD	1/16W 6.8K J	
R101	VE-30014128	RESISTOR SMD	1/16W 33R J		R314	VE-30012705	RESISTOR SMD	1/16W 6.8K J	
R102	VE-30012641	RESISTOR SMD	1/16W 10K J		R315	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R102	VE-30012713	RESISTOR SMD	1/16W 75R J		R316	VE-30012679	RESISTOR SMD	1/16W 3.9K J	
R103	VE-30012641	RESISTOR SMD	1/16W 10K J		R317	VE-30016230	RESISTOR SMD	1/16W 16K F	
R103	VE-30012713	RESISTOR SMD	1/16W 75R J		R318	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R104	VE-30000594	RESISTOR CF	1/4W 22K J		R319	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R104	VE-30012713	RESISTOR SMD	1/16W 75R J		R320	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R105	VE-30000466	RESISTOR CF	1/4W 1K J		R321	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R105	VE-30012641	RESISTOR SMD	1/16W 10K J		R322	VE-30012695	RESISTOR SMD	1/16W 470R J	
R106	VE-30000594	RESISTOR CF	1/4W 22K J		R323	VE-30012987	RESISTOR SMD	1/16W 56R J	
R106	VE-30012641	RESISTOR SMD	1/16W 10K J		R324	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R107	VE-30000466	RESISTOR CF	1/4W 1K J		R325	VE-30012695	RESISTOR SMD	1/16W 470R J	
R107	VE-30012510	RESISTOR SMD	1/16W 100R J		R326	VE-30012695	RESISTOR SMD	1/16W 470R J	
R108	VE-30000650	RESISTOR CF	1/4W 33R J		R327	VE-30012695	RESISTOR SMD	1/16W 470R J	
R108	VE-30012510	RESISTOR SMD	1/16W 100R J		R328	VE-30012669	RESISTOR SMD	1/16W 22K J	
R109	VE-30000650	RESISTOR CF	1/4W 33R J		R329	VE-30012669	RESISTOR SMD	1/16W 22K J	
R109	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R330	VE-30012669	RESISTOR SMD	1/16W 22K J	
R110	VE-30000594	RESISTOR CF	1/4W 22K J		R331	VE-30012669	RESISTOR SMD	1/16W 22K J	
R110	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R332	VE-30012510	RESISTOR SMD	1/16W 100R J	
R111	VE-30000712	RESISTOR CF	1/4W 470R J		R333	VE-30012510	RESISTOR SMD	1/16W 100R J	
R111	VE-30012510	RESISTOR SMD	1/16W 100R J		R334	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R112	VE-30000594	RESISTOR CF	1/4W 22K J		R335	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R113	VE-30000712	RESISTOR CF	1/4W 470R J		R336	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R114	VE-30000594	RESISTOR CF	1/4W 22K J		R337	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R115	VE-30000712	RESISTOR CF	1/4W 470R J		R339	VE-30012642	RESISTOR SMD	1/16W 120K J	
R121	VE-30012679	RESISTOR SMD	1/16W 3.9K J		R340	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R122	VE-30012510	RESISTOR SMD	1/16W 100R J		R341	VE-30012644	RESISTOR SMD	1/16W 12K J	
R123	VE-30012510	RESISTOR SMD	1/16W 100R J		R342	VE-30012668	RESISTOR SMD	1/16W 220R J	
R127	VE-30012641	RESISTOR SMD	1/16W 10K J		R343	VE-30012668	RESISTOR SMD	1/16W 220R J	
R128	VE-30012641	RESISTOR SMD	1/16W 10K J		R344	VE-30012657	RESISTOR SMD	1/16W 1K J	
R136	VE-30012506	RESISTOR SMD	1/16W 1.5K J		R345	VE-30012669	RESISTOR SMD	1/16W 22K J	
R137	VE-30012506	RESISTOR SMD	1/16W 1.5K J		R346	VE-30012657	RESISTOR SMD	1/16W 1K J	
R138	VE-30012506	RESISTOR SMD	1/16W 1.5K J		R347	VE-30014022	RESISTOR SMD	1/16W 47R J	
R139	VE-30012657	RESISTOR SMD	1/16W 1K J		R348	VE-30012655	RESISTOR SMD	1/16W 180R J	
R141	VE-30012641	RESISTOR SMD	1/16W 10K J		R349	VE-30014022	RESISTOR SMD	1/16W 47R J	
R142	VE-30012657	RESISTOR SMD	1/16W 1K J		R350	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R143	VE-30012657	RESISTOR SMD	1/16W 1K J		R353	VE-30012641	RESISTOR SMD	1/16W 10K J	
R145	VE-30012510	RESISTOR SMD	1/16W 100R J		R354	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R146	VE-30012510	RESISTOR SMD	1/16W 100R J		R355	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R147	VE-30012510	RESISTOR SMD	1/16W 100R J		R357	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R148	VE-30012510	RESISTOR SMD	1/16W 100R J		R358	VE-30012695	RESISTOR SMD	1/16W 470R J	
R149	VE-30012641	RESISTOR SMD	1/16W 10K J		R359	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R152	VE-30012655	RESISTOR SMD	1/16W 180R J		R360	VE-30012506	RESISTOR SMD	1/16W 1.5K J	
R153	VE-30012641	RESISTOR SMD	1/16W 10K J		R361	VE-30012657	RESISTOR SMD	1/16W 1K J	
R154	VE-30012641	RESISTOR SMD	1/16W 10K J		R367	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R155	VE-30012641	RESISTOR SMD	1/16W 10K J		R368	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R156	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R369	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R157	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R372	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R158	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R373	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R159	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R374	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R160	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R375	VE-30012684	RESISTOR SMD	1/16W 330R J	
R161	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R376	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R162	VE-30012509	RESISTOR SMD	1/16W 100K J		R379	VE-30012684	RESISTOR SMD	1/16W 330R J	
R165	VE-30025836	FERRITE NET	240R/100MHz 150mA		R380	VE-30012669	RESISTOR SMD	1/16W 22K J	
R166	VE-30025836	FERRITE NET	240R/100MHz 150mA		R383	VE-30012630	RESISTOR SMD	1/16W 16K F	
					R384	VE-30012679	RESISTOR SMD	1/16W 3.9K J	

△Ref No.	Part No.	Part Name	Description	Local	△Ref No.	Part No.	Part Name	Description	Local
R385	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R617	VE-30012713	RESISTOR SMD	1/16W 75R J	
R386	VE-30012506	RESISTOR SMD	1/16W 1.5K J		R618	VE-30012982	RESISTOR SMD	1/16W 10R J	
R387	VE-30012506	RESISTOR SMD	1/16W 1.5K J		R619	VE-30012695	RESISTOR SMD	1/16W 470R J	
R388	VE-30012641	RESISTOR SMD	1/16W 10K J		R620	VE-30012641	RESISTOR SMD	1/16W 10K J	
R389	VE-30012641	RESISTOR SMD	1/16W 10K J		R621	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R390	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R622	VE-30012713	RESISTOR SMD	1/16W 75R J	
R391	VE-30012696	RESISTOR SMD	1/16W 47K J		R623	VE-30012713	RESISTOR SMD	1/16W 75R J	
R392	VE-30012696	RESISTOR SMD	1/16W 47K J		R625	VE-30012982	RESISTOR SMD	1/16W 10R J	
R393	VE-30012510	RESISTOR SMD	1/16W 100R J		R626	VE-30012695	RESISTOR SMD	1/16W 470R J	
R394	VE-30012641	RESISTOR SMD	1/16W 10K J		R627	VE-30012641	RESISTOR SMD	1/16W 10K J	
R395	VE-30012684	RESISTOR SMD	1/16W 330R J		R628	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R396	VE-30012684	RESISTOR SMD	1/16W 330R J		R629	VE-30012713	RESISTOR SMD	1/16W 75R J	
R397	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R630	VE-30012713	RESISTOR SMD	1/16W 75R J	
R399	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R631	VE-30012713	RESISTOR SMD	1/16W 75R J	
R400	VE-30012713	RESISTOR SMD	1/16W 75R J		R632	VE-30000797	RESISTOR SMD	1/10W 75R J	
R401	VE-30012713	RESISTOR SMD	1/16W 75R J		R633	VE-30000797	RESISTOR SMD	1/10W 75R J	
R402	VE-30012713	RESISTOR SMD	1/16W 75R J		R634	VE-30012509	RESISTOR SMD	1/16W 100K J	
R404	VE-30012713	RESISTOR SMD	1/16W 75R J		R635	VE-30012509	RESISTOR SMD	1/16W 100K J	
R405	VE-30012713	RESISTOR SMD	1/16W 75R J		R636	VE-30012509	RESISTOR SMD	1/16W 100K J	
R406	VE-30012713	RESISTOR SMD	1/16W 75R J		R637	VE-30012509	RESISTOR SMD	1/16W 100K J	
R407	VE-30012510	RESISTOR SMD	1/16W 100R J		R700	VE-30012641	RESISTOR SMD	1/16W 10K J	
R408	VE-30012510	RESISTOR SMD	1/16W 100R J		R701	VE-30012641	RESISTOR SMD	1/16W 10K J	
R409	VE-30012713	RESISTOR SMD	1/16W 75R J		R702	VE-30012510	RESISTOR SMD	1/16W 100R J	
R410	VE-30012644	RESISTOR SMD	1/16W 12K J		R703	VE-30012510	RESISTOR SMD	1/16W 100R J	
R411	VE-30012669	RESISTOR SMD	1/16W 22K J		R704	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R412	VE-30014022	RESISTOR SMD	1/16W 47R J		R705	VE-30012712	RESISTOR SMD	1/16W 8.2K J	
R413	VE-30012657	RESISTOR SMD	1/16W 1K J		R706	VE-30012641	RESISTOR SMD	1/16W 10K J	
R414	VE-30012713	RESISTOR SMD	1/16W 75R J		R707	VE-30012712	RESISTOR SMD	1/16W 8.2K J	
R415	VE-30012510	RESISTOR SMD	1/16W 100R J		R708	VE-30012669	RESISTOR SMD	1/16W 22K J	
R416	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R709	VE-30012669	RESISTOR SMD	1/16W 22K J	
R417	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J		R710	VE-30012641	RESISTOR SMD	1/16W 10K J	
R425	VE-30012695	RESISTOR SMD	1/16W 470R J		R711	VE-30012510	RESISTOR SMD	1/16W 100R J	
R426	VE-30012695	RESISTOR SMD	1/16W 470R J		R712	VE-30012657	RESISTOR SMD	1/16W 1K J	
R427	VE-30012695	RESISTOR SMD	1/16W 470R J		R713	VE-30012657	RESISTOR SMD	1/16W 1K J	
R431	VE-30012657	RESISTOR SMD	1/16W 1K J		R714	VE-30012702	RESISTOR SMD	1/16W 560R J	
R432	VE-30012657	RESISTOR SMD	1/16W 1K J		R715	VE-30012702	RESISTOR SMD	1/16W 560R J	
R434	VE-30012657	RESISTOR SMD	1/16W 1K J		R716	VE-30012702	RESISTOR SMD	1/16W 560R J	
R437	VE-30012713	RESISTOR SMD	1/16W 75R J		R717	VE-30012702	RESISTOR SMD	1/16W 560R J	
R438	VE-30012713	RESISTOR SMD	1/16W 75R J		R720	VE-30023426	FIXED COIL SMD	1.2uH KQ4550mA	
R439	VE-30012713	RESISTOR SMD	1/16W 75R J		R721	VE-30023426	FIXED COIL SMD	1.2uH KQ4550mA	
R450	VE-30012509	RESISTOR SMD	1/16W 100K J		R722	VE-30023426	FIXED COIL SMD	1.2uH KQ4550mA	
R451	VE-30012657	RESISTOR SMD	1/16W 1K J		R723	VE-30012713	RESISTOR SMD	1/16W 75R J	
R452	VE-30012669	RESISTOR SMD	1/16W 22K J		R724	VE-30012713	RESISTOR SMD	1/16W 75R J	
R453	VE-30012509	RESISTOR SMD	1/16W 100K J		R725	VE-30012713	RESISTOR SMD	1/16W 75R J	
R454	VE-30012509	RESISTOR SMD	1/16W 100K J		R726	VE-30012657	RESISTOR SMD	1/16W 1K J	
R459	VE-30012510	RESISTOR SMD	1/16W 100R J		R727	VE-30012657	RESISTOR SMD	1/16W 1K J	
R460	VE-30012510	RESISTOR SMD	1/16W 100R J		R728	VE-30023426	FIXED COIL SMD	1.2uH KQ4550mA	
R503	VE-30012510	RESISTOR SMD	1/16W 100R J		R729	VE-30012713	RESISTOR SMD	1/16W 75R J	
R504	VE-30012510	RESISTOR SMD	1/16W 100R J		R730	VE-30023426	FIXED COIL SMD	1.2uH KQ4550mA	
R505	VE-30012510	RESISTOR SMD	1/16W 100R J		R731	VE-30012713	RESISTOR SMD	1/16W 75R J	
R506	VE-30012510	RESISTOR SMD	1/16W 100R J		R732	VE-30012713	RESISTOR SMD	1/16W 75R J	
R507	VE-30012698	RESISTOR SMD	1/16W 5.6K J		R733	VE-30023426	FIXED COIL SMD	1.2uH KQ4550mA	
R508	VE-30012510	RESISTOR SMD	1/16W 100R J		R734	VE-30012510	RESISTOR SMD	1/16W 100R J	
R509	VE-30012641	RESISTOR SMD	1/16W 10K J		R735	VE-30012510	RESISTOR SMD	1/16W 100R J	
R510	VE-30012644	RESISTOR SMD	1/16W 12K J		R736	VE-30012657	RESISTOR SMD	1/16W 1K J	
R511	VE-30012696	RESISTOR SMD	1/16W 47K J		R737	VE-30012657	RESISTOR SMD	1/16W 1K J	
R512	VE-30012684	RESISTOR SMD	1/16W 330R J		R738	VE-30012657	RESISTOR SMD	1/16W 1K J	
R513	VE-30012713	RESISTOR SMD	1/16W 75R J		R739	VE-30012657	RESISTOR SMD	1/16W 1K J	
R514	VE-30012669	RESISTOR SMD	1/16W 22K J		R742	VE-30012642	RESISTOR SMD	1/16W 120K J	
R515	VE-30012669	RESISTOR SMD	1/16W 22K J		R743	VE-30012644	RESISTOR SMD	1/16W 12K J	
R516	VE-30012657	RESISTOR SMD	1/16W 1K J		R744	VE-30012696	RESISTOR SMD	1/16W 47K J	
R517	VE-30012659	RESISTOR SMD	1/16W 2.2K J		R745	VE-30012669	RESISTOR SMD	1/16W 22K J	
R518	VE-30012510	RESISTOR SMD	1/16W 100R J		R746	VE-30016230	RESISTOR SMD	1/16W 16K F	
R522	VE-30012641	RESISTOR SMD	1/16W 10K J		R747	VE-30012641	RESISTOR SMD	1/16W 10K J	
R523	VE-30012659	RESISTOR SMD	1/16W 2.2K J		R748	VE-30012713	RESISTOR SMD	1/16W 75R J	
R524	VE-30012510	RESISTOR SMD	1/16W 100R J		R749	VE-30012668	RESISTOR SMD	1/16W 220R J	
R525	VE-30012702	RESISTOR SMD	1/16W 560R J		R750	VE-30012657	RESISTOR SMD	1/16W 1K J	
R527	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R751	VE-30012510	RESISTOR SMD	1/16W 100R J	
R529	VE-30012982	RESISTOR SMD	1/16W 10R J		R752	VE-30012657	RESISTOR SMD	1/16W 1K J	
R530	VE-30014022	RESISTOR SMD	1/16W 47R J		R753	VE-30012641	RESISTOR SMD	1/16W 10K J	
R531	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R761	VE-30000315	CAPACITOR SMD	220nF 25V Z	
R600	VE-30012713	RESISTOR SMD	1/16W 75R J		R762	VE-30012713	RESISTOR SMD	1/16W 75R J	
R601	VE-30012713	RESISTOR SMD	1/16W 75R J		R763	VE-30000469	RESISTOR SMD	1/10W 1K J 0805	
R602	VE-30012510	RESISTOR SMD	1/16W 100R J		R764	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R603	VE-30012510	RESISTOR SMD	1/16W 100R J		R765	VE-30012641	RESISTOR SMD	1/16W 10K J	
R604	VE-30012982	RESISTOR SMD	1/16W 10R J		R766	VE-30012641	RESISTOR SMD	1/16W 10K J	
R605	VE-30012695	RESISTOR SMD	1/16W 470R J		R767	VE-30012641	RESISTOR SMD	1/16W 10K J	
R606	VE-30012641	RESISTOR SMD	1/16W 10K J		R768	VE-30012641	RESISTOR SMD	1/16W 10K J	
R607	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R769	VE-30012641	RESISTOR SMD	1/16W 10K J	
R608	VE-30012713	RESISTOR SMD	1/16W 75R J		R770	VE-30012641	RESISTOR SMD	1/16W 10K J	
R609	VE-30012982	RESISTOR SMD	1/16W 10R J		R771	VE-30012641	RESISTOR SMD	1/16W 10K J	
R610	VE-30012695	RESISTOR SMD	1/16W 470R J		R778	VE-30012641	RESISTOR SMD	1/16W 10K J	
R611	VE-30012641	RESISTOR SMD	1/16W 10K J		R779	VE-30012509	RESISTOR SMD	1/16W 100K J	
R612	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R780	VE-30012641	RESISTOR SMD	1/16W 10K J	
R613	VE-30012713	RESISTOR SMD	1/16W 75R J		R784	VE-30000315	CAPACITOR SMD	220nF 25V Z	
R614	VE-30012713	RESISTOR SMD	1/16W 75R J		R785	VE-30000315	CAPACITOR SMD	220nF 25V Z	
R615	VE-30012713	RESISTOR SMD	1/16W 75R J		R786	VE-30012713	RESISTOR SMD	1/16W 75R J	

▲Ref No.	Part No.	Part Name	Description	Local	▲Ref No.	Part No.	Part Name	Description	Local
R787	VE-30012713	RESISTOR SMD	1/16W 75R J		R1238	VE-30012713	RESISTOR SMD	1/16W 75R J	
R788	VE-30000469	RESISTOR SMD	1/10W 1K J 0805		R1239	VE-30012684	RESISTOR SMD	1/16W 330R J	
R789	VE-30012510	RESISTOR SMD	1/16W 100R J		R1240	VE-30012684	RESISTOR SMD	1/16W 330R J	
R790	VE-30012510	RESISTOR SMD	1/16W 100R J		R1300	VE-30014128	RESISTOR SMD	1/16W 33R J	
R791	VE-30012510	RESISTOR SMD	1/16W 100R J		R1302	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R792	VE-30012510	RESISTOR SMD	1/16W 100R J		R1305	VE-30012641	RESISTOR SMD	1/16W 10K J	
R793	VE-30017652	RESISTOR SARRAY	1/16W 47RX4 J		R1306	VE-30014128	RESISTOR SMD	1/16W 33R J	
R800	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R1307	VE-30012713	RESISTOR SMD	1/16W 75R J	
R801	VE-30014128	RESISTOR SMD	1/16W 33R J		R1308	VE-30012713	RESISTOR SMD	1/16W 75R J	
R802	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1310	VE-30014128	RESISTOR SMD	1/16W 33R J	
R803	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1311	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R804	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1312	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R805	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1318	VE-30012641	RESISTOR SMD	1/16W 10K J	
R806	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1319	VE-30014022	RESISTOR SMD	1/16W 47R J	
R807	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1336	VE-30014128	RESISTOR SMD	1/16W 33R J	
R808	VE-30020529	FERRITE SMD	120R/100MHz 200mA		R1337	VE-30014128	RESISTOR SMD	1/16W 33R J	
R901	VE-30012641	RESISTOR SMD	1/16W 10K J		R1338	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R902	VE-30012642	RESISTOR SMD	1/16W 120K J		R1339	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R903	VE-30012641	RESISTOR SMD	1/16W 10K J		R1400	VE-30012506	RESISTOR SMD	1/16W 1.5K J	
R904	VE-30012641	RESISTOR SMD	1/16W 10K J		R1401	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R907	VE-30012510	RESISTOR SMD	1/16W 100R J		R1402	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R908	VE-30012510	RESISTOR SMD	1/16W 100R J		R1403	VE-30012982	RESISTOR SMD	1/16W 10R J	
R909	VE-30012677	RESISTOR SMD	1/16W 3.3K J		R1404	VE-30012510	RESISTOR SMD	1/16W 100R J	
R910	VE-30012713	RESISTOR SMD	1/16W 75R J		R1407	VE-30012982	RESISTOR SMD	1/16W 10R J	
R911	VE-30012713	RESISTOR SMD	1/16W 75R J		R1408	VE-30012695	RESISTOR SMD	1/16W 470R J	
R912	VE-30012655	RESISTOR SMD	1/16W 180R J		R1409	VE-30012641	RESISTOR SMD	1/16W 10K J	
R913	VE-30012679	RESISTOR SMD	1/16W 3.9K J		R1410	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R915	VE-30012509	RESISTOR SMD	1/16W 100K J		R1411	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R918	VE-30012677	RESISTOR SMD	1/16W 3.3K J		R1413	VE-30014022	RESISTOR SMD	1/16W 47R J	
R919	VE-30012668	RESISTOR SMD	1/16W 220R J		R1414	VE-30012982	RESISTOR SMD	1/16W 10R J	
R920	VE-30012657	RESISTOR SMD	1/16W 1K J		R1415	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R921	VE-30012655	RESISTOR SMD	1/16W 180R J		R1416	VE-30012659	RESISTOR SMD	1/16W 2.2K J	
R922	VE-30012641	RESISTOR SMD	1/16W 10K J		R1417	VE-30014022	RESISTOR SMD	1/16W 47R J	
R923	VE-30012641	RESISTOR SMD	1/16W 10K J		R1418	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R924	VE-30012641	RESISTOR SMD	1/16W 10K J		R1419	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R925	VE-30012641	RESISTOR SMD	1/16W 10K J		R1421	VE-30012657	RESISTOR SMD	1/16W 1K J	
R926	VE-30012668	RESISTOR SMD	1/16W 220R J		R1428	VE-30012655	RESISTOR SMD	1/16W 180R J	
R927	VE-30012641	RESISTOR SMD	1/16W 10K J		R1443	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R928	VE-30012641	RESISTOR SMD	1/16W 10K J		R1444	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R931	VE-30013001	RESISTOR SMD	1/16W 1K F		R1447	VE-30012713	RESISTOR SMD	1/16W 75R J	
R932	VE-30012987	RESISTOR SMD	1/16W 56R J		R1448	VE-30012713	RESISTOR SMD	1/16W 75R J	
R933	VE-30013001	RESISTOR SMD	1/16W 1K F		R1449	VE-30012655	RESISTOR SMD	1/16W 180R J	
R1059	VE-30012657	RESISTOR SMD	1/16W 1K J		R1451	VE-30012713	RESISTOR SMD	1/16W 75R J	
R1100	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R1456	VE-30012982	RESISTOR SMD	1/16W 10R J	
R1101	VE-30012713	RESISTOR SMD	1/16W 75R J		R1463	VE-30014128	RESISTOR SMD	1/16W 33R J	
R1102	VE-30012713	RESISTOR SMD	1/16W 75R J		R1465	VE-30014022	RESISTOR SMD	1/16W 47R J	
R1103	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R1466	VE-30014022	RESISTOR SMD	1/16W 47R J	
R1104	VE-30012669	RESISTOR SMD	1/16W 22K J		R1467	VE-30016230	RESISTOR SMD	1/16W 16K F	
R1105	VE-30014442	RESISTOR SMD	1/16W 20K F		R1468	VE-30020847	RESISTOR SMD	1/16W 510K J	
R1106	VE-30012510	RESISTOR SMD	1/16W 100R J		R1470	VE-30012696	RESISTOR SMD	1/16W 47K J	
R1108	VE-30012641	RESISTOR SMD	1/16W 10K J		R1600	VE-30012696	RESISTOR SMD	1/16W 47K J	
R1110	VE-30012641	RESISTOR SMD	1/16W 10K J		R1601	VE-30012692	RESISTOR SMD	1/16W 4.7K J	
R1112	VE-30012641	RESISTOR SMD	1/16W 10K J		R1602	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1113	VE-30012641	RESISTOR SMD	1/16W 10K J		R1603	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1114	VE-30012641	RESISTOR SMD	1/16W 10K J		R1604	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1115	VE-30012641	RESISTOR SMD	1/16W 10K J		R1630	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1118	VE-30012694	RESISTOR SMD	1/16W 470K J		R1631	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1119	VE-30012694	RESISTOR SMD	1/16W 470K J		R1632	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1120	VE-30012712	RESISTOR SMD	1/16W 8.2K J		R1649	VE-30014128	RESISTOR SMD	1/16W 33R J	
R1121	VE-30012696	RESISTOR SMD	1/16W 47K J		R1650	VE-30014128	RESISTOR SMD	1/16W 33R J	
R1122	VE-30012658	RESISTOR SMD	1/16W 1M J		R1651	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1123	VE-30012669	RESISTOR SMD	1/16W 22K J		R1652	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1125	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R1653	VE-30014128	RESISTOR SMD	1/16W 33R J	
R1126	VE-30012713	RESISTOR SMD	1/16W 75R J		R1657	VE-30014128	RESISTOR SMD	1/16W 33R J	
R1127	VE-30014128	RESISTOR SMD	1/16W 33R J		R1658	VE-30014022	RESISTOR SMD	1/16W 47R J	
R1128	VE-30012712	RESISTOR SMD	1/16W 8.2K J		R1659	VE-30014022	RESISTOR SMD	1/16W 47R J	
R1134	VE-30014128	RESISTOR SMD	1/16W 33R J		R1739	VE-30012641	RESISTOR SMD	1/16W 10K J	
R1135	VE-30014128	RESISTOR SMD	1/16W 33R J		R1740	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1136	VE-30014128	RESISTOR SMD	1/16W 33R J		R1741	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1137	VE-30012692	RESISTOR SMD	1/16W 4.7K J		R1742	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1144	VE-30026054	RESISTOR SARRAY	1/32W 47R J		R1743	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1147	VE-30012713	RESISTOR SMD	1/16W 75R J		R1744	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1148	VE-30014128	RESISTOR SMD	1/16W 33R J		R1745	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1151	VE-30012659	RESISTOR SMD	1/16W 2.2K J		R1746	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1152	VE-30012659	RESISTOR SMD	1/16W 2.2K J		R1747	VE-30026054	RESISTOR SARRAY	1/32W 47R J	
R1158	VE-30012713	RESISTOR SMD	1/16W 75R J		L100	VE-30001996	FIXED COIL	22uH Q40 K	
R1159	VE-30012713	RESISTOR SMD	1/16W 33R J		L101	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
R1160	VE-30014128	RESISTOR SMD	1/16W 33R J		L101	VE-30001996	FIXED COIL	22uH Q40 K	
R1161	VE-30014128	RESISTOR SMD	1/16W 33R J		L102	VE-30001971	FIXED COIL	1uH Q45 M-A	
R1221	VE-30012667	RESISTOR SMD	1/16W 220K J		L103	VE-30001979	FIXED COIL	1uH Q45 M-A	
R1222	VE-30012667	RESISTOR SMD	1/16W 220K J		L103	VE-30002170	FERRITE CORE	1A RAD (FTZ)	
R1231	VE-30012702	RESISTOR SMD	1/16W 560R J		L104	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
R1232	VE-30012702	RESISTOR SMD	1/16W 560R J		L105	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
R1233	VE-30012692	RESISTOR SMD	1/16W 4.7K J		L109	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
R1235	VE-30012707	RESISTOR SMD	1/16W 680R J		L110	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
R1236	VE-30012695	RESISTOR SMD	1/16W 470R J		L113	VE-30000710	RESISTOR SMD	600R/100MHz 200mA	
R1237	VE-30012714	RESISTOR SMD	1/16W 820R J					1/10W 47R J	

△Ref No.	Part No.	Part Name	Description	Local	△Ref No.	Part No.	Part Name	Description	Local
L300	VE-30017542	FIXED COIL SMD	10uH J Q25 155mA		L1215	VE-30001968	FERRITE SMD	200R/100MHz 200mA	
L301	VE-30017542	FIXED COIL SMD	10uH J Q25 155mA		L1216	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA	
L302	VE-30017542	FIXED COIL SMD	10uH J Q25 155mA		L1217	VE-30001968	FERRITE SMD	200R/100MHz 200mA	
L303	VE-30017542	FIXED COIL SMD	10uH J Q25 155mA		L1219	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA	
L305	VE-30001990	FIXED COIL	6.8uH Q75 K		L1220	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA	
L306	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1221	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA	
L307	VE-30006712	FERRITE BEAD	3.5X4.7X0.8		L1222	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA	
L401	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1400	VE-30016451	FIXED COIL	IF Q=30 7.96KHZ	
L402	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1404	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA	
L408	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1405	VE-30011011	FIXED COIL	22uH J RAD	
L409	VE-30017542	FIXED COIL SMD	10uH J Q25 155mA		L1413	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
L501	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1822	VE-30016659	COIL 1UH SMD	10uH J Q25 155mA	
L502	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1823	VE-30017542	FIXED COIL SMD	22uH J Q25 125mA	
L503	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1824	VE-30017143	FIXED COIL SMD	600R/100MHz 200mA	
L504	VE-30001996	FIXED COIL	22uH Q40 K		L1825	VE-30018612	COIL 330nH SMD		
L600	VE-30017542	FIXED COIL SMD	10uH J Q25 155mA		L1826	VE-30018612	COIL 330nH SMD		
L700	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1827	VE-30016659	COIL 1UH SMD		
L701	VE-30001971	FERRITE SMD	600R/100MHz 200mA		L1828	VE-30016659	COIL 1UH SMD		
L702	VE-30001971	FERRITE SMD	600R/100MHz 200mA		△F900	VE-30028331	FUSE	7A/32VDC	
L703	VE-30001971	FERRITE SMD	600R/100MHz 200mA		△F901	VE-30028331	FUSE	7A/32VDC	
L704	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK100	VE-30001900	HEADPHONE JACK	HP01/2/3/4/5/6	
L705	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK101	VE-30001893	RCA JACK	1P YELLOW 28 FAV	
L706	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK102	VE-30001891	RCA JACK	1P WHITE 28 FAV	
L707	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK103	VE-30001892	RCA JACK	1P RED 28 FAV	
L708	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK104	VE-30001895	JACK	4P DIN TYPE FOR SVHS	
L709	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK105	VE-30001891	RCA JACK	1P WHITE 28 FAV	
L710	VE-30006712	FERRITE BEAD	3.5X4.7X0.8		JK106	VE-30001892	RCA JACK	1P RED 28 FAV	
L711	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK107	VE-30033200	RCA JACK	1P BLACK 28 FAV	
L712	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK700	VE-30001902	HEADPHONE JACK	STEREO WO/SW	
L713	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK702	VE-30001891	RCA JACK	1P WHITE 28 FAV	
L714	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK703	VE-30001892	RCA JACK	1P RED 28 FAV	
L715	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK704	VE-30001892	RCA JACK	1P RED 28 FAV	
L716	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK705	VE-30032233	RCA JACK	1P GREEN 28 FAV	
L717	VE-30001971	FERRITE SMD	600R/100MHz 200mA		JK706	VE-30032234	RCA JACK	1P BLUE 28 FAV	
L718	VE-30024779	FERRITE SMD	50R/100MHz 3A		JK901	VE-30027932	DC POWER SOCKET 7.5A		
L719	VE-30024779	FERRITE SMD	50R/100MHz 3A		PL1	VE-30016698	CNAS SP/250 FLT W/C UL2468AWG24		
L721	VE-30024779	FERRITE SMD	50R/100MHz 3A		PL2	VE-30029436	CNAS 4P/300 TFT FLT W/C UL2547 AWG24		
L722	VE-30024779	FERRITE SMD	50R/100MHz 3A		PL100	VE-30030582	CONN MALE	6P MOLEX VERTICAL(TFT)	
L723	VE-30001971	FERRITE SMD	600R/100MHz 200mA		PL101	VE-30032051	D SOCKET	D-SUB 15P FOR TFT	
L724	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		PL102	VE-30024732	CONN HEADER	12P 2.0mm TOP	
L725	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		PL110	VE-30010902	CONN HEADER	20P 2.54MM TOP DR WO/LOCK	
L726	VE-30001971	FERRITE SMD	600R/100MHz 200mA		PL110	VE-30010945	PIN HEADER 2X5 100MIL		
L729	VE-30001971	FERRITE SMD	600R/100MHz 200mA		PL160	VE-30031603	SOCKET PCMCIA S.DECK 5mm HEADER only		
L736	VE-30018093	FIXED COIL SMD	3.3uH J Q30 185mA		PL300	VE-30025777	CONN HEADER	5P 2.5MM TOP BLK SD	
L739	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA		PL301	VE-30017953	CONN MALE	5P SIDE WHITE	
L800	VE-30001971	FERRITE SMD	600R/100MHz 200mA		PL302	VE-30009477	CONN HEADER	4P 2.5MM SIDE WHT	
L801	VE-30002170	FERRITE CORE	1A RAD (FTZ)		PL306	VE-30021298	CONN MALE	12P MOLEX VERTICAL(TFT)	
L802	VE-30020394	FERRITE SMD	330R/100MHz 3A		PL700	VE-30018089	SOCET SCART BLACK TFT		
L804	VE-30020394	FERRITE SMD	330R/100MHz 3A		PL701	VE-30018089	SOCET SCART BLACK TFT		
L900	VE-30002170	FERRITE CORE	1A RAD (FTZ)		PL702	VE-30021298	CONN MALE	12P MOLEX VERTICAL(TFT)	
L901	VE-30011450	FIXED COIL	22uH 5.4A 11.5*15.5		PL703	VE-30001829	CONN HEADER	2P 2.5MM TOP WHT SD	
L903	VE-30002170	FERRITE CORE	1A RAD (FTZ)		PL704	VE-30015192	CONN HEADER	2P 2.5MM TOP YELLOW SD	
L906	VE-30001996	FIXED COIL	22uH Q40 K		PL707	VE-30030582	CONN MALE	6P MOLEX VERTICAL(TFT)	
L907	VE-30002170	FERRITE CORE	1A RAD (FTZ)		PL800	VE-30018073	CONN HEA.	20P 1.25MM SIDE WHT SMT	
L908	VE-30011450	FIXED COIL	22uH 5.4A 11.5*15.5		PL803	VE-30030582	CONN MALE	6P MOLEX VERTICAL(TFT)	
L910	VE-30002002	FIXED COIL	47uH Q60 K		S100	VE-30006712	FERRITE BEAD	3.5X4.7X0.8	
L911	VE-30002170	FERRITE CORE	1A RAD (FTZ)		S102	VE-30006712	FERRITE BEAD	3.5X4.7X0.8	
L913	VE-30019475	FIXED COIL	47uH 2A RAD SH 14X16		S103	VE-30006712	FERRITE BEAD	3.5X4.7X0.8	
L914	VE-30011450	FIXED COIL	22uH 5.4A 11.5*15.5		S104	VE-30006712	FERRITE BEAD	3.5X4.7X0.8	
L1007	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S105	VE-30006712	FERRITE BEAD	3.5X4.7X0.8	
L1008	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S106	VE-30006712	FERRITE BEAD	3.5X4.7X0.8	
L1009	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S107	VE-30033090	CABLE 1P/40 BLK AWG18		
L1010	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S1X3	VE-30033090	CABLE 1P/40 BLK AWG18		
L1011	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S1X6	VE-30033090	CABLE 1P/40 BLK AWG18		
L1012	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S700	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
L1013	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		S701	VE-30001971	FERRITE SMD	600R/100MHz 200mA	
L1014	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		SW1	VE-30016022	TACT SWITCH	VERTICAL T&R	
L1015	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		SW2	VE-30016022	TACT SWITCH	VERTICAL T&R	
L1016	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		SW3	VE-30016022	TACT SWITCH	VERTICAL T&R	
L1017	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		SW4	VE-30016022	TACT SWITCH	VERTICAL T&R	
L1018	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA		SW5	VE-30016022	TACT SWITCH	VERTICAL T&R	
L1019	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA		SW7	VE-30016022	TACT SWITCH	VERTICAL T&R	
L1020	VE-30001971	FERRITE SMD	600R/100MHz 200mA		SW17	VE-30016022	TACT SWITCH	VERTICAL T&R	
L107	VE-30000710	RESISTOR SMD	1/10W 47R J		△TU140	VE-30021785	TUNER TERRESTRIAL UHF HORIZONTAL(SAMS)		
L108	VE-30001971	FERRITE SMD	600R/100MHz 200mA		△TU500	VE-30020655	TUNER WSP (PLL)	38.9 TMK3-HORIZONTAL-PIP	
L109	VE-30001971	FERRITE SMD	600R/100MHz 200mA		X100	VE-30017946	CRYSTAL	14.318 MHZ	
L111	VE-30001971	FERRITE SMD	600R/100MHz 200mA		X300	VE-30006662	CRYSTAL	6.000 20p HC49U	
L113	VE-30013412	FERRITE SMD	1.5K/100MHz 500 mA		X400	VE-30008778	CRYSTAL	20.250 13p HC49U	
L1203	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA		X500	VE-30021113	CRYSTAL	4MHZ LOW PROFILE	
L1207	VE-30017143	FIXED COIL SMD	22uH J Q25 125mA		X700	VE-30001756	CRYSTAL	18.432 12p HC49U	
L1208	VE-30001968	FERRITE SMD	200R/100MHz 200mA		X1100	VE-30007367	CRYSTAL	27MHZ R=20 OHM	
L1209	VE-30001968	FERRITE SMD	200R/100MHz 200mA		X1400	VE-30033132	CRYSTAL	27MHZ LC=10PF (HC49US)	
L1210	VE-30001968	FERRITE SMD	200R/100MHz 200mA		Z101	VE-30017312	CABL 1P/450 DIS UL1672AWG22		
L1211	VE-30001968	FERRITE SMD	200R/100MHz 200mA		Z500	VE-30001692	SAW FILTER	OFWK3953M	
L1212	VE-30001968	FERRITE SMD	200R/100MHz 200mA		Z501	VE-30012545	SAW FILTER	K9656M	
L1213	VE-30001968	FERRITE SMD	200R/100MHz 200mA		Z1400	VE-30015953	SAW FILTER	X6966M	
L1214	VE-30001968	FERRITE SMD	200R/100MHz 200mA						

## PACKING



## PACKING PARTS LIST

Ref.No.	Part No.	Part Name	Description	Local
1	VE-50060735	CARTON BOX		
2	VE-20176628	SNOW BOX ASSY		
3	VE-30030071	AC ADAPTER	2pcs in 1set	
4	VE-30034033	REMOTE CONTROL UNIT	24VDC 6A C14 4PO W/PFC SAFE-PKG	
5	VE-50060737	INST BOOK	RM-C1895	
6	VE-30002375	POWER CORD	English	
7	-----	WARRANTY CARD	JVC LT-23D50BK(IDTV)	
8	-----	BATTERY	AA/R06	
9	VE-50018337	POLY BAG		



# JVC

ENGLISH

# JVC

InteríArt

**LT-17D50BK**

**LT-23D50BK**

INTEGRATED DIGITAL WIDE LCD PANEL TV

INSTRUCTIONS

DVB<sup>®</sup>  
Digital Video  
Broadcasting

Trade Mark of the DVB Digital Video Broadcasting Project (1991 to 1996) Number: 3465



0205MKH-VT-VT

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## For users in the UK:

If you have any problems setting up your new TV, please call the **JVC** Helpline on 0870330 5000

## For users in the Republic of Ireland:

If you have any problems setting up your new TV, please call the **JVC** Helpline on 1890 - 582500

## For your safety

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured. So, please read the points below for your own safety. They are of a general nature, intended to help you with all your electronic consumer products and some points may not apply to the goods you have just purchased.

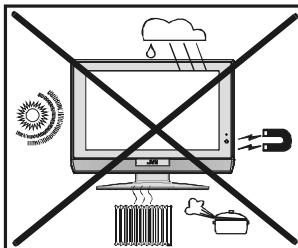
### Some “DOs” and “DON’Ts” for you

#### Air Circulation...

Leave at least 10cm clearance around the television to allow adequate ventilation. This will prevent the TV from overheating and consequential possible damage to the TV. Dusty places should also be avoided.

#### Heat Damage...

Damage may occur if you leave the TV in direct sunlight or near a heater. Avoid places subject to extremely high temperatures or humidity, or locations where the temperature is likely to fall below 5°C (41°F).



#### Mains Supply...

The mains supply required for this equipment is **100 -240 AC, 50 Hz**. Never connect to a DC supply or any other power source. DO ensure that the TV is not standing on the mains lead. DO NOT cut off the mains plug from this equipment, this incorporates a special Radio Interference Filter, the removal of which will impair its performance.

#### Hot / Moderate Climate Conditions

This device is suitable for working in hot and moderate climate conditions.

**IF IN DOUBT PLEASE CONSULT A COMPETENT ELECTRICIAN.**

#### DO...

**DO** read the operating instructions before you attempt to use the equipment.

**DO** ensure that all electrical connections (including the mains plug, extension leads and inter-connections between pieces of equipment) are properly made and in accordance with the manufacturers' instructions.

Switch off and withdraw the mains plug before making or changing connections.

**DO** consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.

**DO** be careful with glass panels or doors on equipment.

#### DO NOT...

**DON’T** remove any fixed cover as this may expose dangerous voltages.

**DON’T** obstruct the ventilation openings of the equipment with items such as newspapers, table-cloths, curtains etc. Overheating will cause damage and shorten the life of the equipment.

**DON'T** allow electrical equipment to be exposed to dripping or splashing or objects filled with liquids, such as vases, to be placed on the equipment.

**DON'T** place hot objects or naked flame sources, such as lighted candles or night-lights on, or close to the equipment. High temperatures can melt plastic and lead to fires.

**DON'T** use makeshift stands and NEVER fix legs with wood screws. To ensure complete safety, always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.

**DON'T** listen to headphones at high volume, as such use can permanently damage your hearing.

**DON'T** leave equipment switched on when it is unattended, unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch off using the switch on the equipment and make sure your family know how to do this. Special arrangements may need to be made for infirm or handicapped people.

**DON'T** continue to operate the equipment if you are in any doubt about it working normally, or it is damaged in any way – switch off, withdraw the mains plug and consult your dealer.

**DON'T** put the empty batteries into garbage instead of recycle bin to reduce harmful effects to the environment.

**ABOVE ALL – NEVER let anyone, especially children, push anything into holes, slots or any other openings in the case – this could result in a fatal electric shock.**

NEVER guess or take chances with electrical equipment of any kind – it is better to be safe than sorry.

**To fully disconnect the TV, switch off the mains socket and remove the Power plug.**

#### **Safety Precautions for Power adapter**

- Be careful! May become hot.
- For indoor and dry location use only.
- Risk of electric shock.
- Shock hazard, do not open.
- Keep all power adapters away from any other heat source.
- Always use power adapter(s) well-ventilated area.

*\*\* Cold cathode fluorescent lamp in LCD PANEL contains a small amount of mercury, please follow local ordinances or regulations for disposal.*

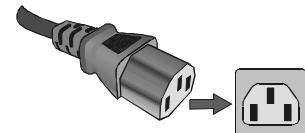
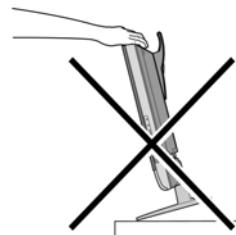
"The LCD panel is very high technology product with about a million thin film transistors, giving you fine picture details. Occasionally, a few non-active pixels may appear on the screen as a fixed point of blue, green or red. Please note that this does not affect the performance of your product." Please note that certain light guns used with games consoles may not work on this product.

#### **Warning:**

**This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.**

## **WARNING**

- Fingers may be trapped under the TV causing injuries. Hold the TV at the bottom in the middle, and do not allow it to tilt up or down.
- The TV may fall causing injuries. Hold the bottom of the stand with your hand and tilt the TV up and down.
- Do not allow children to hang from the TV, place their elbows on the TV or lean against the TV. Doing so may cause the TV to fall over and lead to injuries.



## **CAUTION:**

- To avoid electric shock or damage to the unit, first firmly insert the small end of the power cord into the AC Adapter unit it is no longer wobbly, and then plug the larger end of power cord into an AC outlet.

## **Important Instruction**

For your own safety read following instruction carefully before attempting to connect this unit to the mains supply.

### **MAINS (AC) OPERATION**

The wires in this mains lead are coloured in accordance with the following code :

#### **BLUE-NEUTRAL**

#### **BROWN-LIVE**

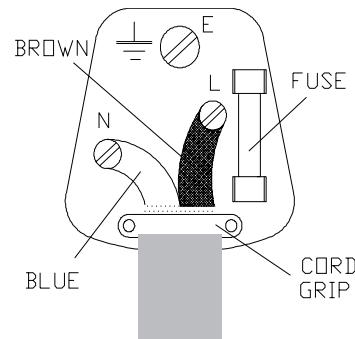
As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

No connection is to be made to the earth terminal of the plug.

If a 13 Amp (BS 1363) Plug is used a 5 Amp Fuse must be fitted, or if any other type of Plug is used a 5 Amp Fuse must be fitted, either in the Plug or Adaptor, or on the Distribution Board.



### **CAUTION**

TO PREVENT ELECTRIC SHOCK  
DISCONNECT FROM THE MAINS  
BEFORE REMOVING COVER. NO USER  
SERVICEABLE PARTS INSIDE. REFER  
SERVICING TO QUALIFIED SERVICE  
PERSONNEL.

### **SAFETY PRECAUTION**

THIS EQUIPMENT MUST BE  
DISCONNECTED FROM THE MAINS  
WHEN NOT IN USE. DO NOT ALLOW  
THIS UNIT TO BE EXPOSED TO RAIN OR  
MOISTURE.

## Where to install

### WARNING

- When you install the TV on the wall, only use a JVC wall mounting unit (optional) which is designed for this TV.
- Make sure the TV is installed on the wall by a skilled installer.

Locate the TV away from direct sunlight and strong lights, soft, indirect lighting is recommended for comfortable viewing. Place on a sturdy platform, the mounting surface should be flat and steady, it should then be secured to the wall with a sturdy tie using the hook on the back of the TV, this will prevent it from falling over. Use curtains or blinds to prevent direct sunlight falling on the screen.

A floor and table top stand are available for this television, or an angled bracket which enables the TV to be wall-mounted.

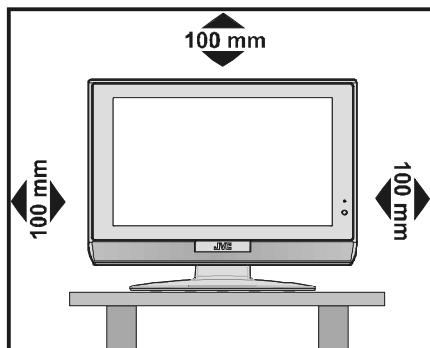
The LCD display panels are manufactured using an extremely high level of precision technology, however sometimes some parts of the screen may be missing picture elements or have luminous spots. This is not a sign of a malfunction.

Make sure the TV is located in a position where it cannot be pushed or hit by objects, as pressure will break or damage the screen.

### Distance Recommendation

Install the TV on solid horizontal surface such as a table or desk.

For ventilation, leave a space of at least 10 cm free all around the set. To prevent any fault and unsafe situations, please do not place any objects on top of the set.



# **Important Information**

## **Please take note**

### **EXCLUSION CLAUSE**

**JVC** shall under no circumstances be liable for loss and/or damage to the product caused by:

- fire;
- earthquake;
- accidental damage;
- intentional misuse of the product;
- use of the product in improper conditions;
- loss and/or damage caused to the product whilst in the possession of a third party;
- any damage or loss caused as a result of the owner's failure and/or neglect to follow the instructions set out in the owner's manual;
- any loss or damage caused directly as a result of misuse or malfunction of the product when used simultaneously with associated equipment;

Furthermore, under no circumstances shall **JVC** be liable for any consequential loss and/or damage including but not limited to the following, loss of profit, interruption of business, the loss of recorded data whether caused during normal operation or misuse of the product.

### **WARNING! NEVER LEAVE A STATIONARY IMAGE ON THE SCREEN**

If stationary images generated by TELETEXT, CHANNEL IDENTIFICATION LOGOS, COMPUTER DISPLAYS, VIDEO GAMES, ON SCREEN MENUS, etc. are left on the TV screen for any length of time, they could become permanently ingrained.

If you use your television to display completely still images, or moving pictures which have a permanent still image superimposed e.g. broadcast network logos, it is always advisable to reduce BOTH the brightness and contrast settings.

### **Care and disposal**

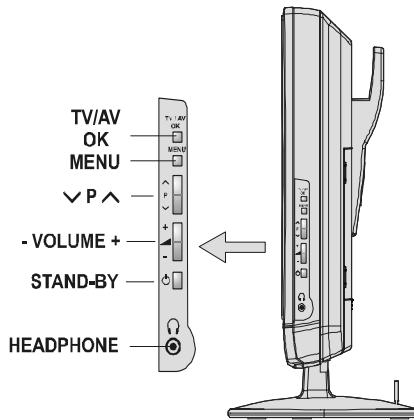
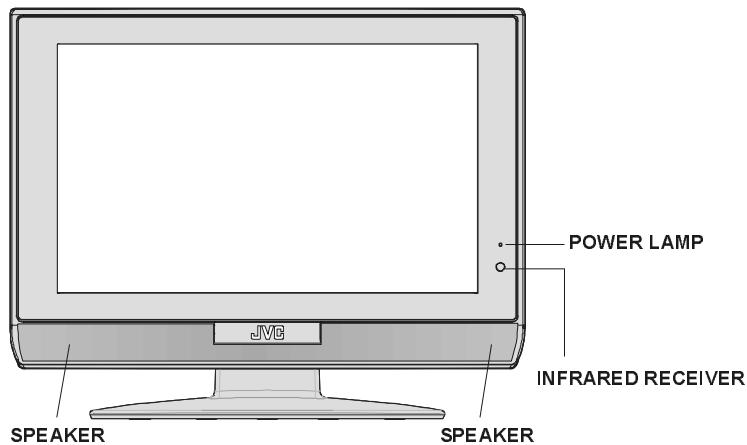
#### **Cleaning the screen and cabinet...**

Turn off the power, clean the screen and cabinet with a soft, dry cloth. We recommend that you do not use any proprietary polishes or solvents on the screen or cabinet as this may cause damage.

#### **Disposal...**

When the set reaches the end of its useful life please dispose of it in accordance with Local Government Regulations or at a recycling centre.

## Control Panel Buttons



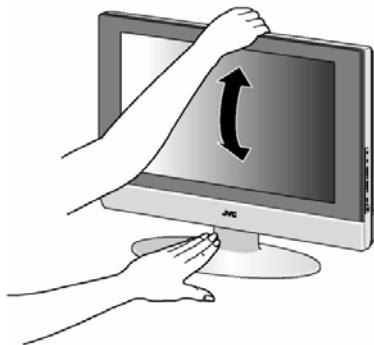
## Using the stand

**This TV comes with a Table Top Stand already attached.**

This stand can be used to adjust the direction of the TV screen 10° backward and 5° forward.

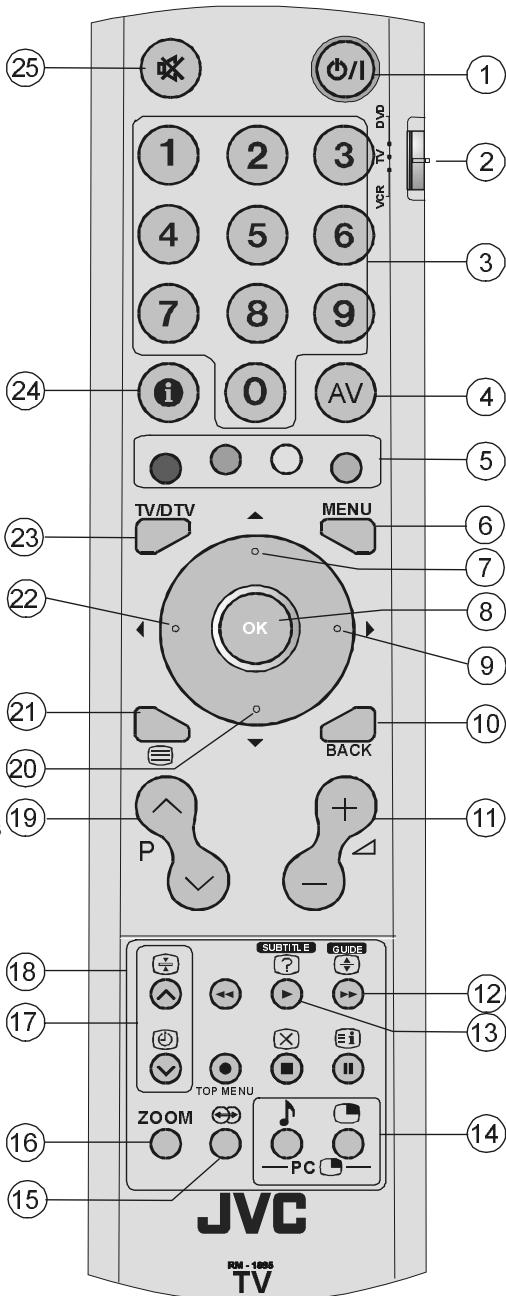
### Tilt the TV up and down:

While holding the bottom of the stand with one hand, use your other hand to hold the middle of the top of the TV and slowly tilt the TV up and down.



## Remote Control Buttons

- ① / I = (Stand By) button
- ② TV / VCR / DVD Switch
- ③ Number buttons
- ④ AV button  
(EXT-1,EXT-2,EXT-3,EXT-4,  
S-VIDEO, PC, DIGITAL)
- ⑤ Colour button
- ⑥ MENU = Menu button
- ⑦ = Cursor Up button
- ⑧ OK button
- ⑨ = Cursor Right button
- ⑩ BACK = Back button
- ⑪ = Volume -/+ buttons
- ⑫ GUIDE button
- ⑬ SUBTITLE button
- ⑭ PC Control buttons
- ⑮ = Hyper Sound On/Off button
- ⑯ ZOOM = Zoom button
- ⑰ buttons
- ⑱ IDTV/ VCR/ DVD/ Teletext Control buttons
- ⑲ P<sup>▲</sup>/V buttons
- ⑳ = Cursor Down button
- ㉑ = Teletext button
- ㉒ = Cursor Left button
- ㉓ TV / DTV button
- ㉔ = Information Button / T-V Link in Program Menu
- ㉕ = Mute button



## Features

- It is a remote controlled **Integrated Digital** colour television and PC monitor.
- 100 programmes from VHF, UHF bands or cable channels can be preset.
- It can tune cable channels.
- Controlling the TV is very easy by its menu driven system.
- It has 2 pieces of Euroconnector socket for external devices (such as video, video games, audio set, etc.)
- To use as a PC monitor, 15 Pin Mini D-Sub connector for computer.
- Optional stereo sound systems (German or German+Nicam) are available.
- Multilanguage OSD.
- Teletext (Fastext, 7 pages).
- It is possible to connect headphone.
- A.P.S. (Automatic programming system)
- All programmes can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child lock.
- Auto, Full, Regular, Panoramic, 14:9 Zoom, 16:9 Zoom, 16:9 Zoom Subtitle modes.
- Automatic sound mute when no transmission.
- When no valid signal is detected, after 5 minutes the TV switches itself automatically to stand-by mode.
- NTSC Playback.
- Universal power supply range is a standard feature on this model.
- TV Picture in PC (if PC input available).
- PLL (Channel Search)
- PC input (Support Up to 1280 x 768)\*

\* Support up to 1360x768 for Model 23D50BK.

# Getting Started

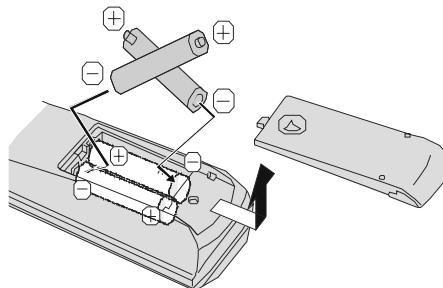
Follow Step 1 to 7 to set up your TV:

## Step 1: Checking the accessories supplied

- Remote control unit x 1
- AA/R6 battery x 2
- AC adapter x 1
- Power cord x 1

## Step 2: Inserting batteries

- Remove the battery cover located on the back of the [remote control](#) by gently pulling upwards from the indicated part.
- Insert two AA/R6 dry cell or equivalent type of batteries inside.
- Replace the battery cover.



**NOTE:** Remove the batteries from remote control when it is not to be used for a long period. Otherwise it can be damaged due to any leakage of battery.

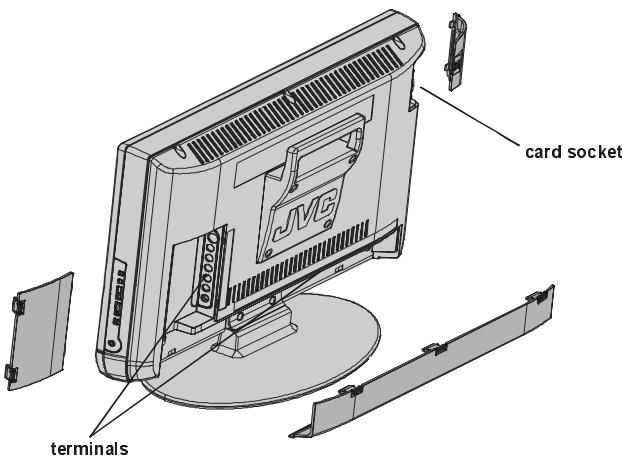
Old batteries must be disposed in a designated area. If performance of the remote control reduces, replace the batteries with the correct type. Do not combine a used, old battery or a new one or mixed battery types. Remove dead batteries immediately to prevent acid from leaking into the battery compartment.

## Step 3: Removing the terminal cover

There are connection terminals and a card socket behind the covers of the rear of the TV. Remove the cover before connecting an antenna, [VCR](#), [DVD](#) and other devices.

Remove the covers by removing the hooks. When replacing the covers, place the side or bottom of the covers against the TV and insert the hooks.

- Leave the covers off if they do not fit properly. DO NOT force to replace the covers. Doing so may cause damages of the connection cables and the covers.
- Leave these covers off when mounting the TV on a wall.



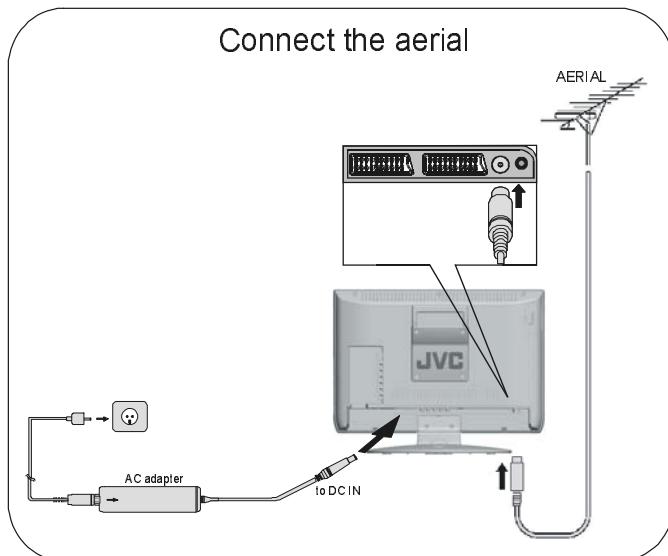
- 100 mm mount based on VESA regulation is equipped.
- The handle and the stand can be left by loosing the screws with a screwdriver when mounting the TV on a wall.
- Spread a soft cloth on a flat table and then place the TV on the cloth with the screen facing downwards when you leave the handle and the stand.

#### **Step 4: Connecting an aerial VCR and mains**

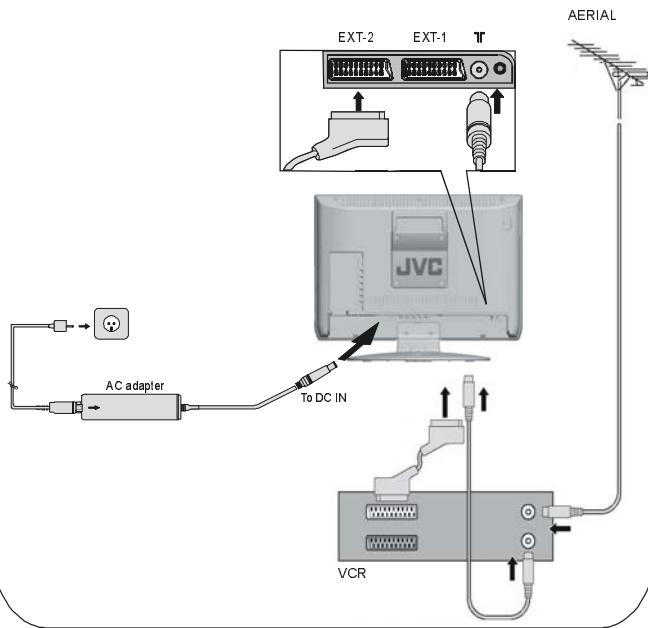
Please read the user manual of each device before connecting, to ensure a correct setup.

It is necessary to connect aerial to watch TV.

Please see "Peripheral Equipment Connections" on page 39 for connections to other devices.



## Connect a video device

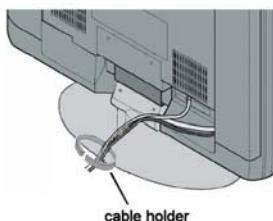


### IMPORTANT:

- Only use the adaptor supplied with this TV.
- Model 17D50BK: The TV set is designed to operate on 12 V DC. For this, an adaptor is used which gives 12 V DC voltage. Connect this adaptor to a system that supplies 100-240 V AC, 50 Hz.
- Model 23D50BK: The TV set is designed to operate on 24 V DC. For this, an adaptor is used which gives 24 V DC voltage. Connect this adaptor to a system that supplies 100-240 V AC, 50 Hz.

### Step 5: Using the cable holder

A cable holder which is used to keep the connection cables tidy is supplied. Attach the cable holder to the hole on the back of the stand, then gather together the connection cables and put them inside the holder.



## **Step 6: Switching the TV ON/OFF**

### **To switch the TV on**

Your TV will switch on by two steps:

- 1- Connect the power supply cord to the system. Then the TV switches itself to stand-by mode and the power lamp becomes red located on the front of the TV.
- 2- To switch on the TV from stand-by mode either:

Press the “ / |” button on the remote control or on the right side of the TV

or,

press a digit button on the remote control so that a programme number is selected,

or,

Press “ P▼” or “ P▲” buttons on the right side of the TV or on the remote control, so that last switched off programme is selected.

By either ways the TV will switch on and the power lamp will become green.

### **To switch the TV off**

- Press the “ / |” button on the remote control or on the right side of the TV, so the TV will switch to stand-by mode and the power lamp will become red.

**NOTE:** To switch the TV off completely remove the mains plug from the socket.

## **Step 7: Initial settings**

When the TV is first turned on, it goes into the initial settings mode. Follow the instructions on the screen display to make the initial settings.

**Note:** If the TV does not go into the initial settings mode this is because your TV has already been turned on for the first time. (Perform the initial settings with “INSTALLATION” (see page 25) in the DTV menu and “AUTO STORE” (Analogue) (see page 32) in the PROGRAM menu.)

Because this is the first time that IDTV has been used, there are no channels stored in the memory and below information will be displayed on the screen.

1. Press the [OK] button to start the automatic search.

PR List Empty. Start automatic search.

OK

The IDTV will automatically tune to the UHF transmission channels 21 to 68 looking for digital terrestrial TV broadcasts and displaying the names of channels found. This process will take about five minutes. To cancel searching, you can press MENU button at any time during the process.

*HINT: Depending on the reception conditions in your particular area, you may find that the list of channels found includes one or more repeated names. This is because the receiver may detect and store some channels, including those it cannot receive clearly, from adjacent areas alongside the strong channels from a transmitter nearby. This is not a problem and the weaker channels can be deleted from the receiver later, as described in - Edit PR List on page 23.*

If no digital terrestrial television broadcasts are found, the receiver will display a message:

No programme found.  
Please check antenna signal.

OK

When “OK” button is pressed, following message will appear on the right bottom of the screen:

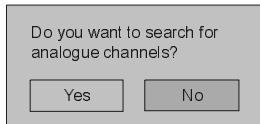
PR List Empty

**2. When the automatic search has finished, the EDIT PR LIST menu appears.**

- If you want to, you can now edit the programme numbers (PR) using the EDIT PR LIST function. For details, see “Edit PR List” on page 23.
- If you do not want to edit programme numbers (PR), go to the next step.

**3. Press the MENU button.**

The EDIT PR LIST menu disappears and the following message appears.



If you select "Yes", Analogue terrestrial broadcasting AUTOMATIC PROGRAMMING SYSTEM (A.P.S.) window is displayed.



To cancel APS before starting, press BLUE button.

First of all choose the "Language" which the menus of the analogue part of the TV will appear. As soon as you change the language, the menu items will be displayed in the selected language. By pressing the "▲" or "▼" button, come to the "Country" item and select the country. This will effect the sort process in APS. Press RED button to start A.P.S.

After APS is finalized, a programme list will appear on the screen. In the programme list you will see the programme numbers and names assigned to the programmes.

If you press the BLUE button at any time while the A.P.S. is running, the A.P.S. will be ended.

If you do not accept the locations and / or the programme names of programmes, you can change them in Program menu. For details see PROGRAM menu on page 32.

If you do not have a T-V LINK compatible VCR, press BLUE button to exit the menu.

If you have a T-V LINK compatible VCR connected to the Ext-2 terminal, press "i" button to display T-V LINK menu. Then follow the operating procedure "Downloading data to VCR" in the following T-V LINK section.

## T-V LINK

When a T-V LINK compatible VCR connected to the EXT-2 terminal on the TV, it is easier to set up the VCR and to view videos. T-V LINK uses the following features:

### To use T-V LINK functions

A "T-V LINK compatible VCR" means a JVC video cassette recorder with the T-V LINK logo, or with one of the following logos. For details see your VCR instruction manual.

"**Q-LINK**" (A trademark of Panasonic Corporation)

"**Data Logic**" (A trademark of Metz Corporation)

"**Easy Link**" (A trademark of Phillips Corporation)

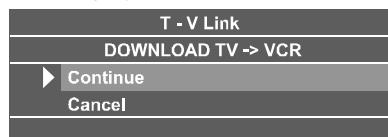
"**Megalogic**" (A trademark of Grundig Corporation)

"**SMARTLINK**" (A trademark of Sony Corporation)

### Downloading data to VCR:

The VCR will automatically download the registered data on the TV channels from the TV. This means you do not need to set up the programme channels on your VCR manually.

The "T-V LINK" menu will be displayed when you press the "i" button while PROGRAM menu is displayed.



Press "►" or "OK" button to start downloading data to VCR. "TRANSFER" is displayed in the menu.



If you do not want to continue press the BLUE button to exit the menu.

If "FEATURE NOT AVAILABLE" is displayed, download was not performed correctly. Before trying to download again, check that:

- The VCR power is turned on.
- The VCR is T-V LINK compatible.
- The VCR is connected to the Ext-2.
- The scart cable is fully wired.

#### Direct REC:

You can easily record to VCR the images that you are watching on the TV. For details, read the manual for your VCR. Use your VCR controls you can not carry out Direct REC using your TV control.

When the VCR is not ready (For example when there is no tape inserted), "NO RECORDING" is displayed.

When you press the following buttons (Stand-by, , AV, MENU, , SUBTITLE, GUIDE, , TV/DTV) during recording, a message appears asking if you want to stop recording or not. Press OK button to stop recording or BLUE button to continue recording.

#### Do not turn the TV off in the following cases:

- When recording images from an external device connected to TV (For example camcorder).
- When recording a TV channel after it has been unscrambled on a decoder.
- When recording a TV channel by using the TV's output because the VCR's own tuner can not properly receive that channel.
- When recording Digital terrestrial broadcasting (DVB-T).

#### TV autopower on/VCR image view:

When the VCR starts playing, the TV automatically turns on and images from Ext-2 appear on the screen.

This function does not happen if your TV's main power is turned off. Set your TV's main power to on (StandBy Mode).

## Basic Operations

You can operate your TV both using the remote control and TV buttons.

### Operation with the buttons on the TV

#### Volume Setting

- Press " -" button to decrease volume or " +" button to increase volume, so a volume level scale (slider) will be displayed at the middle of the bottom on the screen.

#### Programme Selection

- Press " ^" button to select the next programme or " <" button to select the previous programme.

#### Switching input mode

- Pressing TV/AV/OK button will change the input mode.

#### Entering Main Menu

- Press "MENU" button to enter Main menu. In the Main menu select submenu using " <" or " ^" button and enter the submenu using " -" or " +" button. Press TV/AV/OK button to enter. To learn the usage of the menus, refer to the Menu System sections.

### Operation with Remote Control

The remote control of your TV is designed to control all the functions of the model you selected. The functions will be described in accordance with the menu system of your TV.

Functions of the menu system are described in following sections.

#### Volume Setting

Press " +" button to increase volume. Press " -" button to decrease volume. A volume level scale (slider) will be displayed in the middle at the bottom of the screen.



## **Programme Selection (Previous or next programme)**

- Press “P▽” button to select the previous programme.
- Press “P△” button to select the next programme.

## **Programme Selection (direct access):**

Press digit buttons on the remote control to select programmes between 0 and 9. TV will switch to the selected programme. To select programmes between 10 - 99, press the digit buttons consecutively which programme you want to select (eg. for programme 27, first press 2 and then 7). When it is late to press second digit button only the first digit programme will be displayed. The limit of the delay time is 3 seconds.

Example: PR6 → press 6, PR12 → press 1 and 2.

Press directly the programme number to reselect single digit programmes.

**Hint:** The channel list numbers are assigned by the broadcasters. Because not all channels are broadcast free-to-air and stored by the receiver, the channel list numbers do not run continuously. The fifteenth channel in the list, for example, may not be channel number 15 but channel number 17.

**Hint:** If you enter a number which does not correspond to a stored channel, the next valid channel number is selected instead. If you enter a number greater than the highest numbered channel in the channel list, the IDTV will select the last channel in the list.

## **Operating while watching IDTV**

Pressing the “TV/DTV” button at any time while watching television programmes will switch the TV set between displaying the digital terrestrial television broadcasting and its normal analogue broadcasting.

It is also used to switch to the last watched mode (TV or DIGITAL TV) from the EXT mode. For example; if a DVD player is connected with a SCART cable and powered on, then the IDTV will automatically switch to EXT mode. The IDTV will switch to the last watched mode (TV or DIGITAL TV) if DVD

player is switched off or “TV/DTV” button is pressed.

## **EVERYDAY OPERATION**

While using the IDTV to the full, there are great many buttons to use in different situations. Many of the menu screens displayed by the IDTV have reminders as to which button do what, at the base of the screen. In addition, many screens have further help available which is displayed when the **i** button is pressed, as prompted at the bottom right of the screen.

## **OVER AIR DOWNLOAD**

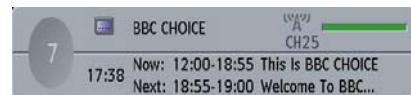
Over Air Download (OAD): To ensure that your IDTV always has the most up-to-date information. Please ensure that after use it is set to its standby mode. At 3AM each day, the IDTV automatically searches for any new information which may be broadcast and will download this to your IDTV automatically. This operation will normally take approximately 30 seconds.

If you want to do this, you need to set Automatic Download to “Enabled” in Receiver Upgrade setting. For details see page 23.

## **INFORMATION BANNER**

Whenever you change channel, using the P▽ / P△ buttons or the number buttons, an information banner is displayed at the bottom of the screen. This will remain on the screen for approximately three seconds. The information banner can also be displayed at any time while watching TV by pressing the

**i** button on the remote control. Pressing the **i** button again removes the banner.



**Hint:** Not all channels broadcast the programme data. If the name and times of the programme is not available then “No Information” is displayed in the information banner.

The information banner gives a number of facts on the channel selected and the programmes on it. The name of the channel is displayed, along with its channel list number and an indication of the strength of the signal received on this tuning channel.

The name and the start and finish time of the programme currently showing on the selected channel are given, and the current time.

Icons are also displayed in the information banner and if this channel is a favourite channel.

favorite channel icon



If the selected channel is locked, you must enter the correct four digit code to view the channel.



## ELECTRONIC PROGRAMME GUIDE (EPG)

Another way of selecting a channel is with the electronic programme guide, or EPG. Like the Channel List, the EPG screen displays a list of the stored channels along with information on what programmes are being broadcast.

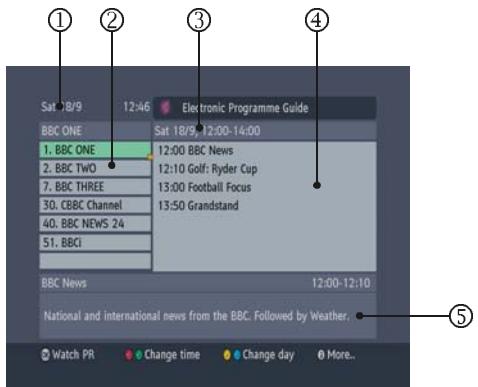
### *Using the Electronic Programme Guide*

EPG can display 7 days programme guide, but in some areas only current and next programme guide is displayed.

By using EPG, you can select the channel and set the reminder for the programme which you do not want to miss.

To display the EPG screen, press the GUIDE button while watching Digital terrestrial broadcasting.

You can exit the EPG screen by pressing the GUIDE button again or the MENU button.



① Current date and time

② Channel listings

③ Selected date and time

④ Programme name and broadcast time

⑤ Brief description of the programme

• The programme name, broadcast time and a brief description of the programme are displayed for the programme chosen from the channel listings.

### Choosing Channel

1. Press “▲” or “▼” buttons to choose the channel.

2. Press OK button.

The selected channel is displayed.

### Programme Reminders

You can easily set the reminder so that you will not miss the programme you want to watch.

1. Press “▲” or “▼” buttons to choose the channel.

2. Press the Red and Green buttons to change the time and Yellow and Blue buttons to change the date.

3. Press “◀” or “▶” buttons and then “▲” or “▼” buttons to choose the programme you want to watch.

4. Press the OK button.

The reminder icon will be displayed on the right side of the chosen programme name and the setting is completed.

When the TV is being watched, it automatically changes to the channel of the reminded programme when the start time of the scheduled programme is reached.

- This function does not work when the TV is turned off.

### To cancel the reminder setting

Display the EPG screen, choose a programme which has the reminder icon, and press the OK button.

Note:

- Reminder events are ignored if any timer event is active at that time.
- You can not set the reminder for the programme which has already started.
- “No Information” is displayed for the programme or channel which does not have any information. You can not set the reminder for these programmes.

### DISPLAYING THE SUBTITLES

With Digital terrestrial broadcasting (DVB-T), some programmes are broadcast with subtitles. Subtitles can be displayed when watching these programmes.

- Press the SUBTITLE button when watching Digital terrestrial broadcasting (DVB-T). “Subtitle ON” appears at the top-left of the screen and, if programme has subtitles, the subtitles are displayed.
- When the SUBTITLE button is pressed again, “Subtitle OFF” appears and the subtitles disappear.

Subtitle ON

Subtitle OFF

### DIGITAL TELETEXT

With Digital terrestrial broadcasting (DVB-T), in addition to pictures and sound, you can also watch digital teletext.

Digital teletext is sometimes broadcast at the same time as normal broadcasting.

### 1. Press the button.

The digital teletext information appears.

### 2. Operate it with the colour buttons,

/// buttons and OK button.

The operation method may differ depending on the contents of the digital teletext.

Follow the instructions displayed on digital teletext screen.

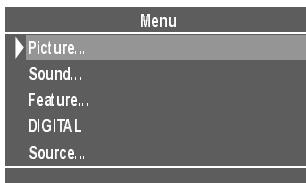
- When “Press SELECT” or similar message appears on the screen, press the OK button.
- When the  (Text) button is pressed, the TV returns to television broadcasting.
- With Digital terrestrial broadcasting (DVB-T), in addition to digital teletext broadcasting at the same time as normal broadcasting, there are also channels with just digital teletext broadcasting.
- The aspect ratio when watching a channel with just digital teletext broadcasting is the same as the aspect ratio of the picture watched previously.
- When you press the  (Text) button while subtitles are on, the subtitles are turned off. When you press the  (Text) button again, the digital teletext screen is displayed.

### DTV Menus

The DTV menu can only be shown when watching Digital terrestrial broadcasting. To display the DTV menu, do the following:

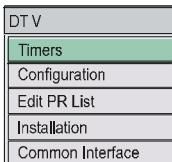
### 1. Press MENU button.

The menu appears.



### 2. Choose DIGITAL and press the OK button.

The DTV menu appears.



## Timers (DTV Timer Recording)

By setting the timer, you can record a Digital terrestrial broadcasting (DVB-T) programme with a VCR connected to Ext-2 while you are out.

- Before using DTV timer recording, the VCR and TV must be connected correctly. For details, see TV-LINK on page 15.
- When you have a T-V LINK compatible VCR connected to Ext-2, all you need to do is set the TV timer settings and the programme will be recorded.

By using "Direct Rec" of the T-V LINK function, the Direct Rec commands are sent from the TV to the VCR to automatically start and end the recording. It is not necessary to set the timer on the VCR.

- When your VCR is not T-V LINK compatible, you also need to set the VCR timer settings to match the TV timer settings.
- The recording may not start and stop at exactly the right times for some programmes. It is recommended that you allow some leeway when setting the recording times.
- Provided that the days and times are not the same, you can set up to ten timer settings.
- When subtitles are ON, the subtitles displayed with the broadcast will be recorded. When you do not want to record the subtitles, you need to turn OFF the subtitles settings beforehand ( See "Displaying the subtitles" on Page19).
- During DTV timer recording, you are unable to view the DTV menu.

### 1. Choose Timers and press the OK button.

The REC TIMER menu appears.

REC TIMER		00:03	21/11/2004		
No.	Name	Start	End	Date	Mode
1	BBC CHOICE	00:00	00:00	01/01/2004	Inactive
2	BBC ONE	00:00	00:00	01/01/2004	Inactive
3	BBC ONE	00:00	00:00	01/01/2004	Inactive
4	BBC ONE	00:00	00:00	01/01/2004	Inactive
5	BBC ONE	00:00	00:00	01/01/2004	Inactive
6	BBC ONE	00:00	00:00	01/01/2004	Inactive
7	BBC ONE	00:00	00:00	01/01/2004	Inactive
8	BBC ONE	00:00	00:00	01/01/2004	Inactive
9	BBC ONE	00:00	00:00	01/01/2004	Inactive
10	BBC ONE	00:00	00:00	01/01/2004	Inactive

- When the BACK button is pressed, the previous screen is returned to.

### 2. Press "▲" / "▼" buttons to choose the timer number, and then press the OK button.

The timer setting window appears.

REC TIMER		00:03	21/11/2004		
No.	Name	Start	End	Date	Mode
1	BBC CHOICE	00:00	00:00	01/01/2004	Inactive
2	BBC ONE	00:00	00:00	01/01/2004	Inactive
3	BBC ONE	00:00	00:00	01/01/2004	Inactive
4	BBC ONE	00:00	00:00	01/01/2004	Inactive
5	BBC ONE	00:00	00:00	01/01/2004	Inactive
6	BBC ONE	00:00	00:00	01/01/2004	Inactive
7	BBC ONE	00:00	00:00	01/01/2004	Inactive
8	BBC ONE	00:00	00:00	01/01/2004	Inactive
9	BBC ONE	00:00	00:00	01/01/2004	Inactive
10	BBC ONE	00:00	00:00	01/01/2004	Inactive

### 3. Use the "▲" / "▼" buttons, number buttons and OK button to set the timer.

- When setting the start time and end time, input 1200 for 12:00 PM, 1500 for 3:00 PM and 0000 for 12:00 AM.

#### Name:

Use the "◀" / "▶" buttons to choose the channel for which the timer is to be set.

Press the "▼" button.

#### Start:

Set the timer start time with the number buttons.

- When the "◀" / "▶" buttons are pressed, the

input position moves.

Press the “▼” button.

#### End:

Set the timer end time with the number buttons.

- When the “◀” / “▶” buttons are pressed, the input position moves.

Press the “▼” button.

#### Date:

Set the date for the timer to work with the numbers.

- When the “◀” / “▶” buttons are pressed, the input position moves.

Press the “▼” button.

#### Mode:

Use the “◀” / “▶” buttons to choose the timer mode (Once/Daily/Weekly), and then press the OK button.

### 4. Prepare your VCR for recording

#### When recording on a T-V LINK compatible VCR:

1. Insert the videotape for recording into the VCR and set the recording mode.
2. Make sure the VCR is ready to receive Direct Rec commands from the TV.
3. Make sure VCR timer settings do not coincide with the TV timer settings.
- For details, see your VCR instruction manual.

#### When recording on a T-V LINK incompatible VCR:

1. Insert the videotape for recording into the VCR and set the recording mode.
2. Set the VCR recording timer settings.
3. Make sure that the start and end time match with the TV timer.
4. Set the VCR to record the signal from the external input that the TV is connected to.
- For details, see your VCR instruction manual.

When you have finished the step 4, you have set the timer.

When you are not watching TV, make sure the TV is in stand by.

#### WARNING :

*Do not turn off the main power. The timer function will not work with the main power switched off.*

The TV power lamp begins flashing before the timer start time. When you are watching TV at that time, a message appears on the screen to inform you the timer is about to start.

- When performing timer recording with a T-V LINK compatible device, test the timer recording before you record the programme. There are some T-V LINK compatible recording device that will not correctly receive the Direct Rec command from the TV.

If the recording device does not operate when the recording start time is reached, it means VCR is not receiving the Direct Rec command from the TV. In this case, follow the instructions of “When recording on a T-V LINK incompatible VCR.”.

#### While the timer is in operation:

- You can turn the TV on or off (Stand by).  
WARNING: Do not turn off the main power.
- You can watch analogue terrestrial broadcasting channels or the pictures via an Ext terminal.
- Please note that any programme information that appears on the screen, such as when making changes to the Digital terrestrial broadcasting (DVB-T) channel picture, will be superimposed over the picture in the VCR recording.
- When you press the following buttons (i, AV, MENU, , SUBTITLE, GUIDE, ) during recording, a message appears asking if you want to stop recording or not. Press OK button to stop recording or BLUE button to continue recording.

## Cancelling the timer setting

Display the REC TIMER menu and press the “▲” / “▼” buttons to choose which timer setting to cancel. Press the “◀” / “▶” buttons so that “Inactive” appears in the Mode column.

## Reactivating the cancelled timer setting

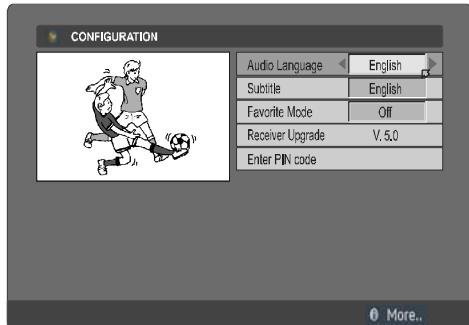
Display the REC TIMER menu and press the “▲” / “▼” buttons to choose which timer setting to reactivate. Press the “◀” / “▶” buttons so that “Active” appears in the Mode column.

## Configuration

Set the basic setting when watching Digital terrestrial broadcasting (DVB-T).

Choose configuration and press the OK button.

CONFIGURATION appears.



- When the BACK button is pressed, the previous screen is returned to. When MENU button is pressed, the menu appears.
- When the **i** (Information) button is pressed, the help screen appears. When it is pressed again, the previous screen is returned to.

## Audio Language

With Digital terrestrial broadcasting (DVB-T), a number of languages can be broadcast at the same time. Choose language you want to listen when watching these broadcasts.

1. Press the “▲” / “▼” buttons and choose Audio Language.

2. Press the “◀” / “▶” buttons and choose the language.

Language changes every time the button is pressed.

- If the selected language is not broadcast, the default language will be played.

## Subtitle Language

With Digital terrestrial broadcasting (DVB-T), a number of subtitles can be broadcast at the same time. Choose the subtitle you want to display when watching these broadcasts.

1. Press the “▲” / “▼” buttons and choose Subtitle.

2. Press the “◀” / “▶” buttons and choose a subtitle language that appears when the SUBTITLE button is pressed.

## Favourite Mode

Enable/disable the Edit PR List Favourites settings.

1. Press the “▲” / “▼” buttons and choose Favourite Mode.

2. Press the “◀” / “▶” buttons and choose ON or OFF.

### On:

The Edit PR List Favourites settings are enabled.

When the **P▽ / P△** button is pressed, only the channels chosen in the Edit PR List favourites (those with the icon) can be chosen.

- For details on how to set your favourite channels, see “Setting the favourite channels” on page 25.

### Off:

The Edit PR List Favourites settings are disabled.

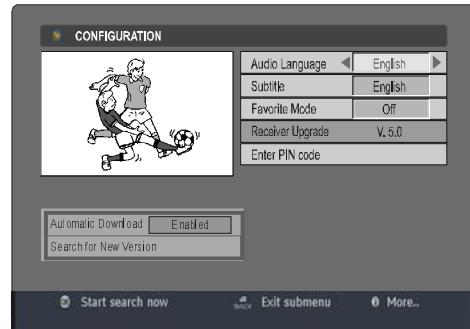
When the **P▽ / P△** button is pressed, all the channels registered in the Edit PR List can be chosen.

## Receiver Upgrade

Set the method to upgrade the Digital terrestrial broadcast (DVB-T) receiver software.

1. Press the “▲” / “▼” buttons and choose Receiver Upgrade, and press the OK button.

The setting window appears.



- The actual version may be different to the Receiver Upgrade version displayed above.

2. Press the “▲” / “▼” buttons and choose Automatic Download, and press the “◀” or “▶” buttons to choose Enable and Disable.

### Enable (factory settings):

The Digital terrestrial broadcasting (DVB-T) software is automatically updated every day at 3:00 am. When enabled, the TV also searches for new software whenever it goes to standby.

### Disable:

The Digital terrestrial broadcasting (DVB-T) software is not automatically updated.

### Manually updating the Digital terrestrial broadcasting (DVB-T) information

Press the “▲” / “▼” buttons and choose Search for New Version, then press the OK button.

The Digital terrestrial broadcasting (DVB-T) information is updated.

In the future, there is a possibility that Receiver Update function may also be able to be used to update the Digital terrestrial

broadcasting (DVB-T) software and add new functions.

## Enter PIN code

Choose Enter PIN code to change the PIN code for the Edit PR List menu's "Lock". The PIN code factory setting (how it is set when you purchase the television) is 0000.

1. Press the “▲” / “▼” buttons and choose Enter PIN code, and press the OK button.

2. Input the current PIN code.

When you are making this setting for the first time, input 0000.

When a PIN code has already been set, enter the correct PIN code.

The PIN code setting window appears.

3. Press the number buttons to input a new PIN code (password).
4. Input the new PIN code (password) again in the Confirm box.

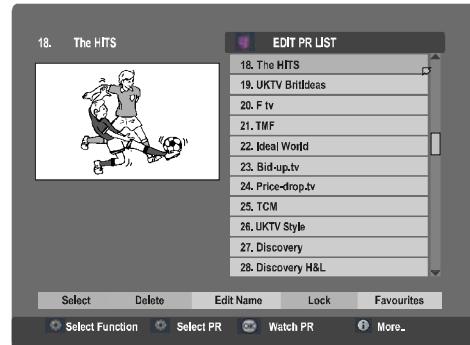
**"Pin code is changed"** appears.

Your newly chosen PIN code is now set. You will now need to use the PIN code (password) you choose. Here to lock or to unlock the Edit PR List's "Lock".

## Edit PR List

Choose Edit PR List and press the OK button.

EDIT PR LIST appears.



The Edit PR List can be used to do the following:

- delete registered channels

- edit channel names.
- lock channels so that they can not be watched by children.
- set Favourites so that you can easily choose from only the channels you often watch.
- Sometimes you may notice a drop in picture quality while watching your programme in the quarter-screen. This is not a fault.
- When the BACK button is pressed, the previous screen is returned to. When the TV/DTV or MENU button is pressed, the menu disappears.
- When the **i** (information) button is pressed, the help screen appears. When it is pressed again, the previous screen is returned to.

Here, you can preview any channel stored by the receiver before viewing it full screen. The complete list of channels is displayed in pages of 11 channels at a time, with their channel list number and a favourite channel icon if appropriate.

### Choosing a channel

The chosen channel is shown on the quarter-screen.

1. Press the “◀” / “▶” buttons and choose Select on the bar at the bottom of the screen.
2. Press the “▲” / “▼” buttons and choose a channel, and then press the **OK** button.

The picture of the chosen channel is shown on the quarter-screen.

### Deleting a channel

1. Press the “◀” / “▶” buttons and choose Delete on the bar at the bottom of the screen.
2. Press the “▲” / “▼” buttons and choose the channel to be deleted, and then press the **OK** button.
3. Choose Yes and press the **OK** button.

The chosen channel is deleted.

- If you do not want to delete the chosen channel, choose NO and press the **OK** button.
- Perform “Installation” (see page 25) to re-register a channel that you have deleted.

### Editing a channel name

1. Press the “◀” / “▶” buttons and choose Edit Name on the bar at the bottom of the screen.
2. Press the “▲” / “▼” buttons and choose the channel to be edited, and then press the **OK** button.
3. Press the “▲” / “▼” buttons and choose a character, press the “◀” / “▶” buttons to move the cursor and edit the name, and then press the **OK** button.

The edited channel appears in the Edit PR List.

### Locking a channel

When there is a channel you do not want your children to watch, you can lock the channel.

1. Press the “◀” / “▶” buttons and choose Lock on the bar at the bottom of the screen.
2. Press the “▲” / “▼” buttons and choose the channel to be locked, and then press the **OK** button.

The Enter PIN code input window appears.



3. Press the number buttons to input to correct PIN code and press the **OK** button.

If you have not changed the PIN code in the CONFIGURATION menu’s “Enter PIN Code” (see page 23), input the PIN code you chose.

The lock icon appears next to the channel name in the Edit PR List.

When a locked channel is chosen, the Enter PIN code input window will appear. If the correct PIN code is input, the picture appears.

- When you forget the PIN code for the "Lock", you can unlock locked channels by performing Automatic Search (see INSTALLATION ).

### Setting the favourite channels

If only channels that you often watch are set as favourite channels, you can choose from just those channels by pressing **P**✓ / **P**▲.

- After setting the favourite channels, check the "Favourite Mode" in "Configuration" (see page 22) is set to ON.

1. Press the "◀" / "▶" buttons and choose Favourites on the bar at the bottom of the screen.
2. Press the "▲" / "▼" buttons and choose the channel to be registered as a favourite channel, and then press the **OK** button.

The favourite icon (  ) appears on the right side of the chosen channel.

When you leave the Channel List screen, by pressing "MENU" the channel showing on the quarter screen is selected for normal viewing on the whole screen.

## Installation

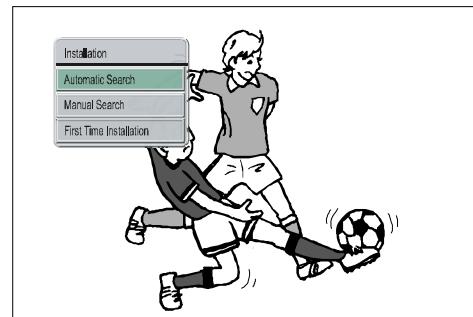
Although your TV will not lose its settings or stored channels when switched off, you may wish to re-install the programs because you have moved to a different area with different broadcast frequencies, you wish to reinstate a channel previously deleted from the channel list, or you want to watch new channels which have started broadcasting.

Display the DTV Menu and using the "▲" or "▼" buttons, highlight the Installation line and press **OK** to display the Installation Menu.

The Installation menu appears.

You can either perform a First Time Installa-

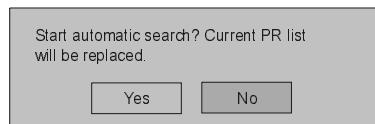
tion, effectively resetting the receiver to its factory setting condition, or just search for channels.



### Automatic Search:

The receiver can search for channels automatically (searching all the broadcast frequencies for free-to-air channels).

To perform Automatic search, Select Automatic Search with the "▲" or "▼" buttons and press **OK**. A warning message is displayed.



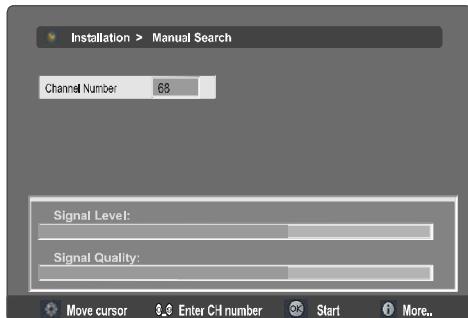
This starts the automatic tuning process and searches through all the available broadcast frequencies for free-to-air channels.



Previous channels will be replaced on automatic search.

## Manual Search:

This is for searching for digital channels on a single broadcast frequency. The frequency channel number (21-68) is entered in the box at the top left of the screen and the received signal level and signal quality can be observed on the two bar graphs at the bottom. When **OK** is pressed, the TV searches that frequency and display a list of the channels found.



### Hint

**The bar graphs of signal quality and signal level give a good indication of whether any channels are likely to be found. If only the signal level graph shows a high value then it is likely that an analogue channel occupies that broadcast frequency. If the signal quality bar is high as well then it is a digital frequency and digital channels will probably be found.**

Again, channels which duplicate those already in the channel list are ignored. However, the manual channel search will find all channels on the broadcast frequency.

When either search is finished, press the **MENU** key to return to normal broadcast viewing, to watch the new digital terrestrial television channels found.

### First Time Installation:

To reset the TV, highlight the First Time Installation line in the menu and press **OK**. A warning screen is displayed in case of accidental operation.

Are you sure you want to delete all channels and settings for first time installation?

Yes

No

Highlight the YES button with the "**◀**" or "**▶**" key and press **OK** to erase all the channels and settings and switch the receiver to standby.

## Common Interface

It is required to subscribe to a pay channel company to view the pay channels of the Digital Terrestrial broadcasting.

Obtain the Conditional Access Module (CAM) and the Viewing card by subscribing to a pay channel company, then insert those to the Television using the following procedure.

**1. Switch off the TV and unplug from the mains.**

**2. Insert the CAM, then Viewing Card to the slot that is located in the terminal cover at the left-hand side of the TV (from front view).**

- The CAM should be correctly inserted, it is impossible to insert fully if reversed. The CAM or the TV terminal may be damaged if the CAM is forcefully inserted.

**3. Connect the TV to the mains supply, switch on and then wait for few moments until the card is activated.**

- Some CAMs may require the following set up. Please set the CAM by entering the DTV menu, Common Interface then pressing **OK** button. (CAM set up menu is not displayed when it is not required.)

- To see the viewing contract information, press **MENU**, Select DTV and Press **OK**, then Select Common Interface and press **OK**.

- When no module is inserted, "**No CI Module**" appears.

- Refer to the module instruction manual for details of the settings.

# Setting The TV

## Menu System

Your TV's analogue part has been designed with a menu system to provide an easy manipulation of a multi-function system. The TV is controlled by choosing the commands, which are displayed on the screen.

### MAIN MENU

Press the "MENU" button. The main menu will be displayed in the middle of the screen.



To select a sub-menu use "▲" or "▼" button, and press "◀" or "▶" button or directly press "OK" button.

In EXT-1, EXT-2 and EXT-4 modes, main menu appears the same as in TV mode but without Program sub-menu.

In EXT-3 mode, Main Menu appears as follows:



In DIGITAL TV mode, DIGITAL will appear on the Main menu. Install and Program do not appear.

Menu does not disappear automatically if it is left on the screen.

Press "MENU" button again to remove menu.

### Picture Menu

Press "MENU" button, now you are in main menu. In the Main menu, select "Picture" using "▲" or "▼" button, then enter the Pic-

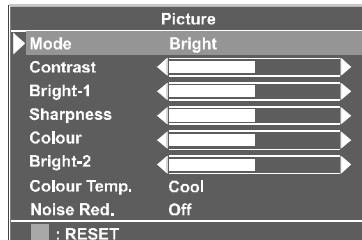
ture menu by pressing "◀" / "▶" or "OK" button.

### Setting Mode

• As you enter the picture menu, Mode will be the first item.

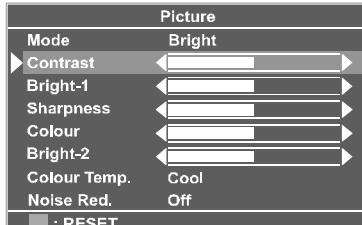
• By pressing "◀" or "▶" button you may choose one of these options:

Soft, Standard and Bright.



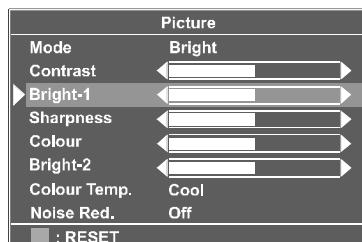
### Setting Contrast

- Using "▲" or "▼" button select Contrast.
- Press "▶" button to increase contrast level.
- Press "◀" button to decrease contrast level.



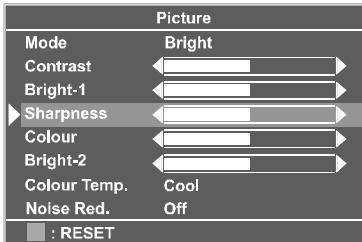
### Setting Bright-1

- Using "▲" or "▼" button select Bright-1.
- Press "▶" button to increase brightness.
- Press "◀" button to decrease brightness.



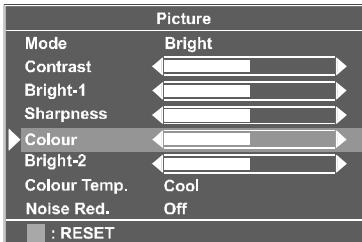
## Setting Sharpness

- Using “▲” or “▼” button select Sharpness.
- Press “▶” button to increase sharpness level.
- Press “◀” button to decrease sharpness level.



## Setting Colour

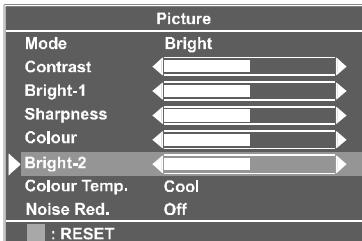
- Using “▲” or “▼” button select Colour.
- Press “▶” button to increase colour level.
- Press “◀” button to decrease colour level.



## Setting Bright-2 (Only for 17D50BK)

Using “▲” or “▼” button select Bright-2.

- Press “▶” button to increase the back light.
- Press “◀” button to decrease the back light.



## Setting Colour Temp.

- Using “▲” or “▼” button select Colour Temp.
- Press “◀” or “▶” button to select “Warm”, “Cool” or “Normal”.

## Setting Noise Reduction

- Using “▲” or “▼” button select Noise Reduction.
- Press “◀” or “▶” button to select Noise Reduction level “Off” or “Minimum” or “Medium” or “Maximum”.

### Note 1:

At low signal level, the changings on the Noise Reduction function are not effective when there is menu on the screen. If the menu is removed, the effect of this function is seen. At normal broadcasting, Noise Reduction changings are effective at once.

### Note 2:

At moving pictures, while Noise Reduction is at maximum level, some picture distortions may occur. If Noise Reduction is set to medium or minimum, the picture will improve.

## Setting Hue

During Playback NTSC system, this will appear in AV mode only when NTSC video source is applied. Otherwise, HUE option is invisible in Picture menu in TV mode :

- Using “▲” or “▼” button select Hue.
- Press “▶” button to increase hue level.
- Press “◀” button to decrease hue level.

Center value is indicated with one arrow.

## Reset

Press BLUE button to reset the picture modes to factory default settings.

## To Store the Settings

In the Picture Menu, all settings are stored automatically.

## Sound Menu

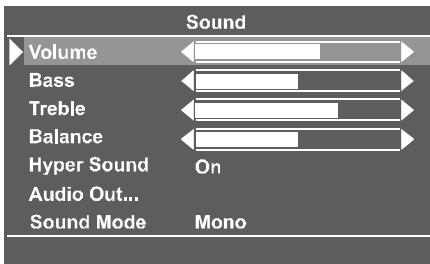
As you enter the main menu, sound will be the second item. In the main menu, select **Sound** using “**▲**” or “**▼**” button, then enter the sound menu by pressing “**◀**” / “**▶**” or “**OK**” button.

### Setting Volume:

As you enter the sound menu, Volume will be the first selected option.

- Press “**▶**” button to increase volume.
- Press “**◀**” button to decrease volume.

Or you can directly change the volume settings using “**◀ +**” (to increase) or “**- ▶**” (to decrease) button.



### Setting Bass Level

- Using “**▲**” or “**▼**” button select Bass Level.
- Press “**▶**” button to increase bass level.
- Press “**◀**” button to decrease bass level.

### Setting Treble Level

- Using “**▲**” or “**▼**” button select Treble
- Press “**▶**” button to increase treble level.
- Press “**◀**” button to decrease treble level

### Setting Balance

It allows adjusting the distribution between the left and right speakers.

- Using “**▲**” or “**▼**” button select Balance.
- Press “**▶**” button to change balance rightward.
- Press “**◀**” button to change balance left-

ward.

### Hyper Sound

- Using “**▲**” or “**▼**” button select Hyper Sound.
- Pressing “**◀**” or “**▶**” button will turn on or off this feature.

Pseudo/spatial effect can be turned on or off via the Hyper Sound item in the Sound menu or by remote control. In Mono transmission the left and right channels will be added at left channel and dummy stereo effect will be introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels. Hyper Sound selection will be displayed on the screen when the TV Status button is pressed or programme is changed.

### To Change Audio Out Settings

**Audio Out** is a sub-menu of Sound menu.

Use this settings to adjust volume for audio out terminal which is located at the right side of the TV.

- Using “**▲**” or “**▼**” button select Audio Out.
- Press “**◀**” or “**▶**” button or directly press “**OK**” button on **Audio Out**, to enter the **Audio Out** menu.



### Audio Out Volume

- As you enter the **Audio Out** sound menu, Volume will be the only option.
- Press “**▶**” button to increase volume.
- Press “**◀**” button to decrease volume.

### Selecting Sound Mode

- Using “**▲**” or “**▼**” button select **Sound Mode**.
- Press “**◀**” or “**▶**” button to change **Sound Mode**.

You can choose **Mono**, **Stereo** or **Dual (I-II)** mode, only if the selected channel supports that mode.

In case of bilingual broadcast (Dual Sound), you can select original or dubbed language using mode option. So when somebody listens to the original language from the loudspeakers, somebody else can listen to the dubbed language from headphone.

### To Store The Settings

In the Sound Menu, all settings are stored automatically.

### Feature Menu

Press “**MENU**” button, now you are in mainmenu. In the main menu, select **Feature** using “**▲**” or “**▼**” button. Then enter the Feature menu by pressing “**◀**” / “**▶**” or “**OK**” button.

Feature	
Sleep Timer	Off
Child Lock	Off
Language	English
EXT-2 Output	TV
Blue Back	Off

### Sleep Timer

The Sleep Timer is used to turn the TV off after a defined period of time after selecting this item. The timer can be programmed between Off and 120 minutes in steps of 10 minutes. (Off, 010, 020, 030, 040, ..., 120)

If sleep timer is activated, at the end of the selected time, the TV goes automatically to stand-by mode.

### Child Lock

You can use this feature to prevent children turning on/off TV or changing programmes or adjustments etc. without remote control.

- Using “**▲**” or “**▼**” button select Child Lock.
- Press “**◀**” / “**▶**” button to select Child Lock On or Off.

The **Child Lock** feature can be set **On** or **Off** by “**◀**” / “**▶**” button. When **Off** is selected, there will be no difference in the operation of your TV. When **On** is selected, the TV can only be controlled by the remote control. In

this case the control panel buttons except “**O**” button on the right side of the TV will not work.

### Selecting Menu Language

- Using “**▲**” or “**▼**” button select Language.
- Press “**◀**” or “**▶**” button to select menu language.

### EXT-2 Output

From EXT-2 Output; TV, EXT-1, EXT-4 or **DIGITAL** can be given. These modes can be chosen by pressing “**◀**” or “**▶**” button on “**EXT-2 OUTPUT**”.

Feature	
Sleep Timer	Off
Child Lock	Off
Language	English
EXT-2 Output	TV
Blue Back	Off

### Blue Back (During No Signal)

The Blue Back Feature can be set by “**▲**” or “**▼**” button to either On or Off.

### To Store Settings

In Feature menu all settings are stored automatically.

### Install Menu

Press “**MENU**” button, now you are in main menu. In the main menu, select “**Install**” using “**▲**” or “**▼**” button. Then enter the Install menu by pressing “**◀**” / “**▶**” or “**OK**” button.

Install	
Programme	P 02
Band	C
Channel	02
Colour System	Auto
Sound System	I
Fine Tuning	←-----→
Search	048.25
Decoder(EXT-2)	Off
VCR	Off
Store	

In EXT mode, Install menu appears like this:

Install	
▶ Colour System	Auto
VCR	Off

You can change only Colour system and VCR.

### Selecting Programme

- Using “▲” or “▼” button select Programme.
- To select programme number, you can use “◀” / “▶” button or Digit Buttons

### Selecting Band

Band, can be chosen either,

- “C” or “S” by “◀” or “▶” button.

### Selecting Channel

Channel can be changed by “◀” or “▶” button or by Digit Buttons.

### Selecting Colour System

Using “◀” or “▶” button on Colour System, you can change the colour system to PAL, SECAM or Auto.

**Note:** In EXT mode, you can choose NTSC 3.58 and NTSC 4.43 as well.

### Selecting Sound System

Using “◀” or “▶” button on Sound System, you can change the standard to BG, DK, I, L, Lp.

### Selecting Fine Tuning

You can use the Fine Tuning process for fine adjustment (after coarse adjustment), if you are not happy about the image on the screen.

Use “◀” or “▶” button on Fine Tuning item, until getting the best image on the screen.

## Selecting Search

To start the search process, press “▶” button for forward search or “◀” button for backward search. If a signal is found or reaches to end of the band after searching, press “◀” or “▶” buttons to continue search process. To stop the search process when you want, press “◀” or “▶” buttons at any time.

### Decoder (EXT-2)

You can use this mode to connect any decoder to your TV.

- Press the “◀” or “▶” buttons to set it “On” or “Off”.

When you select Decoder (EXT-2) “On”, EXT-2 output will be chosen as TV mode only and any scrambled channels will be unscrambled through decoder connected your TV via EXT-2 output.

### Setting VCR ( Video Cassette Recorder ) Mode

- This item can be seen in TV, EXT-1, EXT-2, EXT-3 and EXT-4 modes.
- If you want to watch a VCR source from one of these modes, then it will be better to set VCR mode “On”. For this, while the cursor is on this item press the “◀” or “▶” buttons to set it “On”.
- If you want to watch a DVD, then you must set this item “off”; because DVD is not a source like a VCR and to see the picture better, you must set the VCR mode “Off”.

### To Store Settings

- Press “◀” / “▶” or “OK” button on Store option to store Install menu settings.
- After stored, T-V LINK menu will appear. If you do not need to do T-V LINK, press BLUE button to exit the menu.

## Program Menu

Press "MENU" button, now you are in main menu. In the main menu, select "Program" using "▲" or "▼" button. Then enter the Programme menu by pressing "◀" / "▶" or "OK" button.

**Note:** There is no Program menu in any EXT modes.

Program	P01
►01 BBC	11 -----
02 RTL	12 -----
03 XXXXX	13 -----
04 -----	14 -----
05 -----	15 -----
06 -----	16 -----
07 -----	17 -----
08 -----	18 -----
09 -----	19 -----
10 -----	20 -----
Name	Insert
Delete	Autostore
i : T-V Link	

Program Menu is used to delete a channel, to change the programme number of a channel, to give a channel name to a channel, and to start the A.P.S (Autostore) function.

### To choose a channel in the PROGRAM menu

Press "▲" / "▼" / "◀" / "▶" button. The programme number that you choose is high-lighted in the Program.

#### Caution:

Using "Delete" or "Insert" function rewrite the current channel list in the Program menu. Therefore, the programme numbers of some of channels will change.

### When you complete the settings of Program menu:

If you have a T-V LINK compatible VCR, press "i" button to display the T-V LINK menu. then follow the operating procedure "Downloading the data to VCR".

T - V Link
DOWNLOAD TV -> VCR
► Continue
Cancel

If you do not have a T-V LINK compatible VCR, press BLUE button to exit the menu.

### To give a channel name (Name):

1. Choose the channel you want to give a channel name.
2. Press the RED button to enter the Name mode.
3. Press "◀" or "▶" button to choose the position, and press "▲" or "▼" button to choose each character of channel name.
4. Press the RED button to store the channel name.
- To cancel the Name mode, press the BLUE button.

### To delete a channel (Delete):

1. Choose the channel you want to delete.
2. Press the YELLOW button to enter the Delete mode.
3. Press the YELLOW button to delete it.
- To cancel the Delete mode, press the BLUE button.

### To change the programme number of a channel (Insert)

1. Choose the channel you want to change the programme number.
2. Press the GREEN button to enter the Insert mode.
3. Press "▲" / "▼" / "◀" / "▶" button to choose new programme number.
4. Press the GREEN button to Insert the channel to the chosen programme number.

#### Autostore:

To enter Autostore menu, press the BLUE button. To learn the features of this function see "Autostore" below.

Autostore, searches and stores all channels automatically on your TV, according to the

transmission of programme systems in your area.



First of all choose the "Country" by using "◀" or "▶" button. Then press the Red button to start Autostore.

After Autostore is finalized, a programme list will appear on the screen. In the program list you will see the programme numbers and names assigned to the programmes.

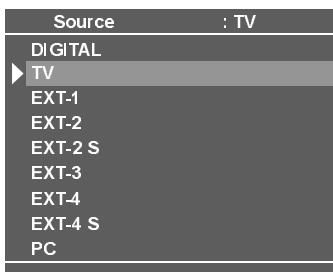
If you do not accept the locations and/or the programme names of programmes, you can change them in Programme menu.

## Source Menu

You can switch your TV to EXT modes by pressing directly to "AV" button or by selecting in source menu from the main menu.

While in EXT mode, you can also switch your TV to TV or other EXT modes by selecting in source menu from the main menu.

In main menu, firstly use "▲" or "▼" button then use "◀" / "▶" or "OK" button to enter Source menu. In source menu, move the cursor by "▲" or "▼" button and then press "OK" button or "◀" / "▶" buttons when the cursor is on the required item. The selected mode comes automatically on the screen.



## Other Features

### TV Status

**Programme Number, Programme Name** (or EXT), (they are displayed on the upper left of the screen). The **sound indicator** is displayed with them too. They are displayed after programme change for 3 seconds.

### Sound Indicator

The alternatives of the indicator are Mono, Stereo, Dual I and Dual II. This indicator is displayed under the programme number indicator on the screen.

Mono

In Mono broadcast or in forced-mono (for stereo broadcast).

Stereo

In Stereo broadcast.

Dual I

If dual broadcast detected. Dual I is selected in default and also can be selected after Dual II by Remote Control.

Dual II

If Dual II selected by Remote Control.

### Hyper Sound

By selecting Hyper Sound in sound menu or by pressing the "◎" button on your remote control, Pseudo/Spatial effect can be turned on or off. In Mono transmission the left and right channels will be added at left channel and dummy stereo effect will introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels.

### Mute Indicator

It is placed in the upper middle of the screen when enabled, and it stays there until it is disabled.



To cancel mute, there are two alternatives; the first one is by pressing the "X" button,

this volume is set to the preceding value, and the second one is increasing the volume level.

## No-Signal Detection (TV mode)

If no valid signal detected, it takes 5 minutes to switch to the Stand-By mode unless any signal detected or any Remote Control command is accessed.

After a Remote Control command (if No-Signal Timer is active) the timer stops and if no signal detected again the timer is initialized to 5 minutes and starts 3 seconds later again to count down.

It is not valid in EXT modes.

## Volume Bar

It is displayed in the lower middle of the screen. When a volume command is received (pressing “**▲ +**” or “**▼ -**” by Remote Control or Control panel at the top of the TV) and no menu is active, it stays on the screen for 3 seconds, after the last volume command or until another command is received in between.



## EXT Modes

By pressing the “AV” button you can switch your TV to EXT modes (except being in Teletext). Pressing this button will consecutively switch the TV in one of the optional EXT modes: **EXT-1**, **EXT-2**, **EXT-2 S**, **EXT-3**, **EXT-4**, **EXT-4 S** and **PC**.

In order to quit the EXT mode press any digit buttons or “**P▼**” or “**P^**”

## Zoom Modes

Zoom mode can be changed by pressing **Zoom** button. You can change the screen size according to the picture aspect ratio. Select the optimum one from the following **ZOOM** modes.

### AUTO:

When a **WSS (Wide Screen Signalling)** signal, which shows the aspect ratio of the picture, is included in the broadcast signal or the signal from an external device, the TV automatically changes the **ZOOM** mode to **16:9 ZOOM** mode **PANORAMIC** or **FULL** mode according to the **WSS** signal.

- When the **AUTO** mode does not function correctly due to poor **WSS** signal quality or when you want to change the **ZOOM** mode, change to another **ZOOM** mode manually.

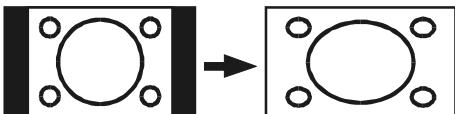
### Using the different screen formats

Press the Red button to select the different modes: Auto,Full, Regular, Panoramic,14:9 Zoom,16:9 Zoom,16:9 Zoom Subtitle modes.

**Note:** You can only choose **REGULAR** and **FULL** in **PC** mode.

#### FULL:

This uniformly stretches the left and right sides of a normal picture (4:3 aspect ratio) to fill the wide TV screen.



- For 16:9 aspect ratio pictures that have been squeezed into a normal picture (4:3 aspect ratio), use the **FULL** mode to restore the picture to its original shape.

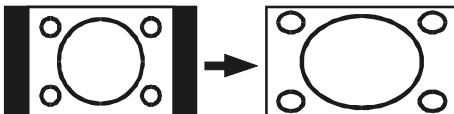
#### REGULAR:

Use to view a normal picture (4:3 aspect ratio) as this is its original shape.



#### PANORAMIC:

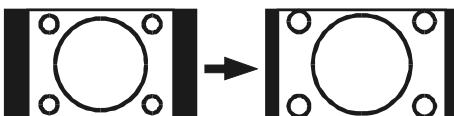
This stretches the left and right sides of a normal picture (4:3 aspect ratio) to fill the screen, without making the picture appear unnatural.



The top and bottom of the picture are slightly cut off.

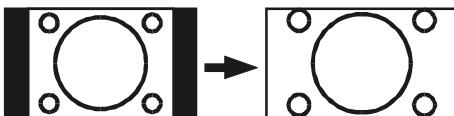
#### 14:9 ZOOM:

This zooms up the wide picture (14:9 aspect ratio) to the upper and lower limits of the screen.



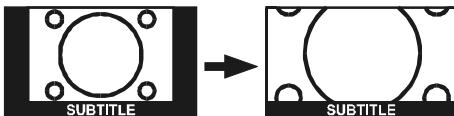
#### 16:9 ZOOM:

This zooms up the wide picture (16:9 aspect ratio) to the full screen.



#### 16:9 ZOOM SUBTITLE:

This zooms up the wide picture (16:9 aspect ratio) with subtitles to the full screen.

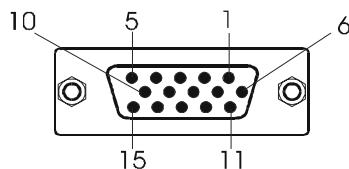


## PC Mode

### Installation

- Power off both Computer and the TV before making any connections.
- Set your PC's resolution correctly before connecting to the TV. See the table in [page 44 or 45](#) for supported modes.
- Use a D-SUB cable to connect the TV's PC input to the computer's RGB output terminal. If you want to listen to the sound from the computer, use an audio cable to connect the PC AUDIO IN to the computer's sound output terminal.

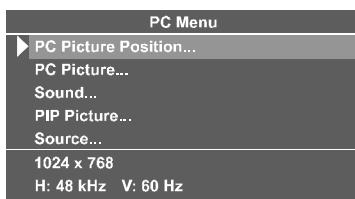
15 Pin Mini D-Sub Connector



- Tighten the screws of the Display cable until the connectors are fastened securely (finger-tighten only).

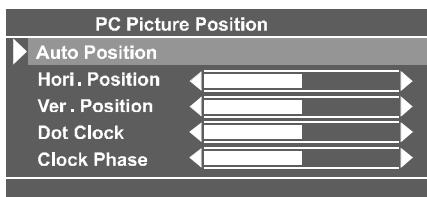
### Main Menu in PC mode:

Enter the main menu by pressing the "MENU" button on the remote control.



### PC Picture Position Menu:

In the Main menu, select "PC Picture Position" using "▲" or "▼" button, then enter the menu by pressing "◀" / "▶" or "OK" buttons.



## Auto Position

If you shift the picture horizontally or vertically to an unwanted position, use this item to put the picture into correct place automatically.

- Select Auto position item by using “▲” or “▼” button.
- Press “OK” button.
- Press “MENU” button or “BACK” button to store the value.

**Warning:** Auto position adjustment recommended to be done with the full screen image for the proper adjustment.

## Horizontal Position

This item shifts the image horizontally to right hand side or left hand side of the screen.

- Select **Hor. Position** item by using “▲” or “▼” button.
- Use “◀” or “▶” button to adjust the value.
- Press “MENU” button or “BACK” button to store the value.

## Vertical Position

This item shifts the image vertically towards the top or bottom of the screen.

- Select **Ver. Position** item by using “▲” or “▼” button.
- Use “◀” or “▶” button to adjust the value.
- Press “MENU” button or “BACK” button to store the value.

## Dot Clock

Dot Clock adjustments correct interference that appear as vertical banding in dot intensive presentations like spreadsheets or paragraphs or text in smaller fonts.

- Use “◀” or “▶” button to adjust the value.

## Clock Phase

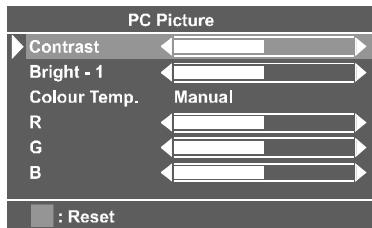
Depending on the resolution and scan frequency that you input to the TV Set, you may see a muddy or noisy picture on the screen. In such a case you can use this item to get a clear picture by trial and error method.

- Use “◀” or “▶” button to adjust the value.

## PC Picture Menu

In the Main menu, select “PC Picture” using “▲” or “▼” button, then enter the PC Picture menu by pressing “◀” / “▶” or “OK” buttons. Contrast, Bright-1 and Colour Temperature adjustments in this menu are identical to adjustments defined in TV picture menu.

R, G, and B adjust the TV image colour in PC mode. You can change the TV colour to your desired colour: R (Red), G (Green), B (Blue)



## Sound Menu

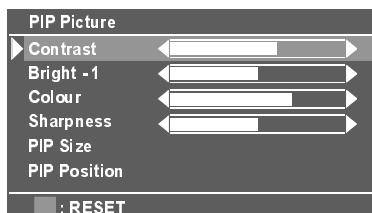
In the main menu select “Sound” using “▲” or “▼” button then enter the Sound menu by pressing “◀” / “▶” or “OK” buttons.

The items in this menu are described at Sound menu starting page 29.

## PIP Picture

In the Main menu, select “PIP Picture” using “▲” or “▼” button, then enter the PIP Picture menu by pressing “◀” / “▶” or “OK” buttons.

This menu is displayed when PIP is displayed on the screen. Otherwise “PIP No Signal” message will be displayed at the bottom of menu.



PIP picture is displayed on the screen by “PIP” button.

Contrast, Bright-1, Colour and Sharpness are described at Picture menu on page 27.

### Setting PIP Size

- Using “▲” or “▼” button select PIP Size.
- Press “◀” or “▶” button to change PIP size.  
Two different PIP sizes are available.

### Setting PIP Position

- Using “▲” or “▼” button select PIP Position.
- Press “◀” or “▶” button to change PIP position.

There are four different PIP positions.

Programme in the PIP window can be changed by “P▽ / P△”, digit buttons or AV button. All EXT modes (Except EXT-3) are also available in PIP window. PIP window is removed from the screen by “□” button.

### Source Menu

In the Main menu, select “Source” using “▲” or “▼” button, then enter the Source menu by pressing “◀” / “▶” or “OK” buttons.

Source	: PC
DIGITAL	
TV	
EXT-1	
EXT-2	
EXT-2 S	
EXT-3	
EXT-4	
EXT-4 S	
▶ PC	

Select the available sources of DIGITAL, TV, EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-4, EXT-4S or PC using “▲” or “▼” button and by pressing “◀” / “▶” or “OK” buttons.

### Sound in PC mode

- Connect the PC’s Audio output to the TV’s PC Audio In socket with an audio cable.
- On your remote control, using “♪” button to select sound source from TV, EXT-1, EXT-2, EXT-3, EXT-4 and PC options.
- When PIP is displayed on the screen, “♪”

button allows you to switch sound between PC and selected PIP source.

### No-Signal and Out Of Range Detection (PC mode)

In PC Mode, as no menu is displayed, in case that there is no PC input to the TV, it is displayed an OSD message:

**No input signal detected**

then the power lamp turns to amber and PC will be in PC standby mode. Press AV button, digit buttons or “P▽ / P△” buttons to exit standby mode.

In PC Mode, as no menu is displayed, in case that there is no PC input to the TV, but the resolution and the vertical frequency is not supported by the concept, it is displayed an OSD message:

**Signal out of range**

### Analogue Teletext

Teletext is an information system that displays text on your TV screen. Using the Teletext information system you can view a page of information on a subject that is available in the list of contents (index).

On screen display is not available in text mode.

Contrast, brightness or colour control is not available, but volume control is available in text mode.

### To operate Teletext

- Select a TV station on which Teletext is being transmitted.
- Press (TELETEXT) “” button. Usually the list of contents (index) is displayed on the screen.



## To select a page of Teletext

- Press the appropriate digit buttons for the required Teletext page number.

The selected page number is displayed at the top left corner of the screen. The Teletext page counter searches until the selected page number is located, so that the desired page is displayed on the screen.

- Press “P $\wedge$ ” button to move the Teletext screen forward one page at a time.
- Press “P $\vee$ ” button to move the Teletext screen backward one page at a time.

## To Select Index Page

- To select the page number of the index (generally page 100), press “” button.

## Searching for a teletext page while watching TV

- In the Teletext mode pressing “” button will switch the screen to the TV mode. In the TV mode enter a page number using digit buttons. As you enter last digit of page number, “” sign will replace the page number and flash until the entered page number is found. Then the page number will replace “” sign again. Now you can display this teletext page pressing “” button.

## To Select Double Height Text

- Press “” button for the top half of the information page to be displayed in double height text.
- Press “” button again for the bottom half of the information page to be displayed in double height text.
- Press “” button once more for the full page of normal height text.

## To Reveal “concealed” Information

- Pressing “” button once will reveal answers on a quiz or games page.
- Pressing “” button again will conceal the

revealed answers.

## To Stop Automatic Page Change

The teletext page you have selected may contain more information than what is on the screen; the rest of the information will be displayed after a period of time.

- Press “” button to stop the automatic page change.
- Press “” button again to allow the next page to be displayed.

## To Select a Subcode Page

Subcode pages are subsections of long Teletext pages that can only be displayed on the screen one section at a time.

- Select the required Teletext page.
- Press “” button.
- Select the required subcode page number by pressing four digit buttons (e.g. 0001).
- If the selected subcode page is not displayed in a short time, press “” button. TV programme will be displayed on the screen.
- Teletext page number will be displayed on the upper left corner of the screen when the selected page is found.
- Press “” button to display the selected Teletext page.

## To exit Teletext

- Press “” button. The screen will switch to TV mode.

## Fastext and TopText

Your TV supports the 7 page Teletext system. When the page number of any of the 7 pages in memory is entered, the system will not search for the requested page; instead it will display the page automatically.

- Press “P $\wedge$ ” button to move the Teletext screen forward one page at a time.
- Press “P $\vee$ ” button to move the Teletext screen backward one page at a time.

## For Fastext and Toptext

The subject-heading for the information may have a particular colour.

- Press an appropriate **RED**, **GREEN**, **YELLOW** or **BLUE** button in order to reach the relevant page quickly.

## For TOPTEXT

If Toptext transmission is present, colour coded buttons will appear in status row.

If Toptext transmission is not present, status row will not appear.

In Toptext mode the “**P**↖” or “**P**↙” commands will request the next or previous page respectively. If Toptext transmission is not available, in case of operation of these commands, wraparound occurs. For example page 100 appears to be one greater than page 199.

## Peripheral Equipment Connections

There is a wide range of audio and video equipment that can be connected to your TV.

Connection diagrams at the end of this section show you where the different equipment should be connected at the back side of the TV.

### Via the Euroconnector

Your TV set has 2 Euroconnector sockets. If you want to connect peripherals (e.g. video, decoder, etc.) which have Euroconnectors, to your TV, use **EXT-1** or **EXT-2** input.

If an external device is connected via Euroconnector sockets TV is switched to AV mode automatically. In this case if both sockets are connected, **SCART1** has the precedence.

### T-V LINK compatible VCR

Be sure to connect the T-V LINK compatible VCR to the **EXT.2** terminal. If not, the T-V LINK function will not work properly.

- When connecting a T-V LINK compatible VCR to the **EXT.2** terminal, be sure to connect the decoder to the VCR. If not, the T-V LINK function may not work properly. And then set the **Decoder (EXT-2)** function for the channel to **ON** to unscramble a scrambled channel.

### RGB mode

If an equipment can output the **RGB** signals, connect it to the **EXT-1** or **EXT-2** terminal.

### EXT-2 S Mode

If the equipment connected to your TV set supports S-Video (Y/C) output from Euroconnector, you can have a better picture quality by selecting **EXT-2 S** mode and connecting your equipment to the **EXT.2 (EXT-2 S)** terminal of TV. See your equipment's booklet to check if your equipment has such feature.

## Via the RCA jacks

If you have an equipment (such as a Camcorder) which has the RCA jacks, connect it to the **EXT-4** terminal with the video and audio cables.

If you have a device which outputs component signal, connect it to the **EXT-3** terminal with a component video cable.

## Via the ANT (aerial) socket

If your equipment does not have an Euro-connector or RCA jacks, connect it to the TV with an aerial cable. For details, see the manual provided with the equipment.

- To store the test signal that comes from the equipment, see “**Install Menu**” on page **30** and store it to the program number 0. You can watch images from that equipment to select the program number which you stored the test signal.

## Decoder

Cable TV offers you a wide choice of programmes. Most of them are free, others are to be paid for by the viewer. This means that you will need to subscribe to the broadcasting organisation whose programmes you wish to receive. This organisation will supply you a corresponding decoder unit to allow the programmes to be unscrambled.

For further information ask your dealer. See also the booklet supplied with your decoder.

### Connect a decoder with an aerial socket to the TV

- Connect the aerial cable.

### Connect a decoder without an aerial socket to the TV

- Connect the decoder to your TV with a eurocable (RCA Jack Cable) to **EXTERNAL** (RCA Jack). When your decoder has a Euroconnector / RCA Jack you can obtain better picture quality if you connect a eurocable (RCA Jack Cable) to **EXTERNAL** (RCA Jack).

## TV and Video Recoder (VCR)

- Connect the Video Recorder to the **ANT** (antenna input) socket of the TV with the aerial cable.
- Connect the Video Recorder to the **EXT-1** or **EXT-2** terminal with the SCART cable, or connect it to the **EXT-4** terminal with the audio and video cables.

## NTSC Playback

Connect a NTSC video recorder to a terminal. Then press “AV” button to select the corresponding AV mode.

**INTSC 3.58/4.43** system is detected automatically in AV mode.

## Camera and Camcorder

### To connect to the EXT-4 terminal

Connect your camera or camcorder at the back side of your TV.

- Connect your equipment to the TV via **VIDEO** (yellow), **AUDIO R** (red) and **AUDIO L** (white) inputs. You should connect the jacks to the input in the same colour.

## Connect the decoder to the video recorder

Some video recorders have a special euroconnector for decoder.

- Connect a eurocable to the euroconnector of your decoder and to the special euroconnector of your video recorder. See also the handbook of your video recorder.
- To connect your video recorder to the TV, see TV and Video Recorder section.

If you want to connect more equipment to your TV, consult your dealer.

## Connecting Headphones

Use the stereo headphone socket on the right side of your TV, to connect headphones.

## **Connecting the PC**

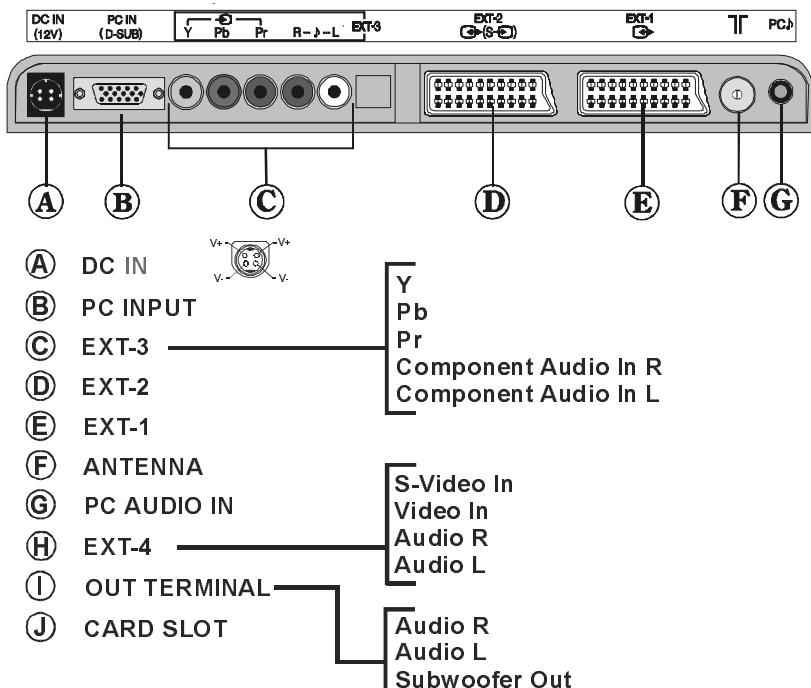
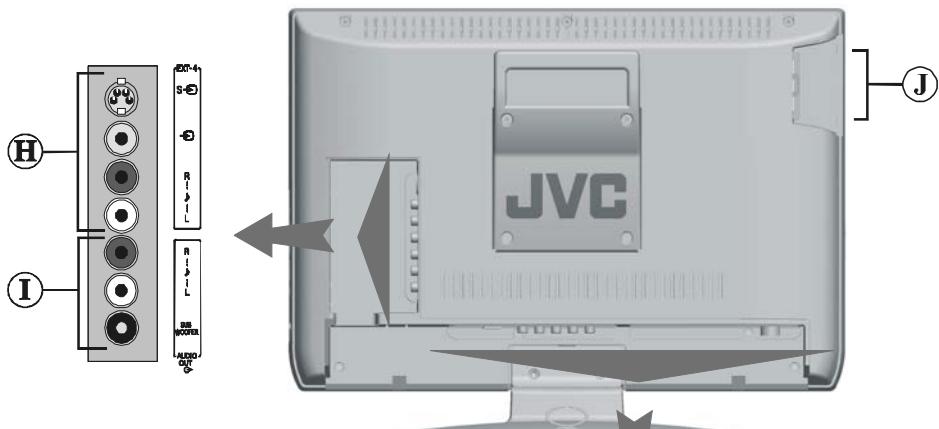
Connect PC monitor with 15-pin PC cable to the 15-pin connector on the rear of the computer. For detail installation procedure see **Installation in PC mode**.

## **To connect to S-Video input**

Connect your camera or camcorder at the back side of your TV.

- Connect your equipment to the TV via S-Video input at the back side by using S-Video cables.

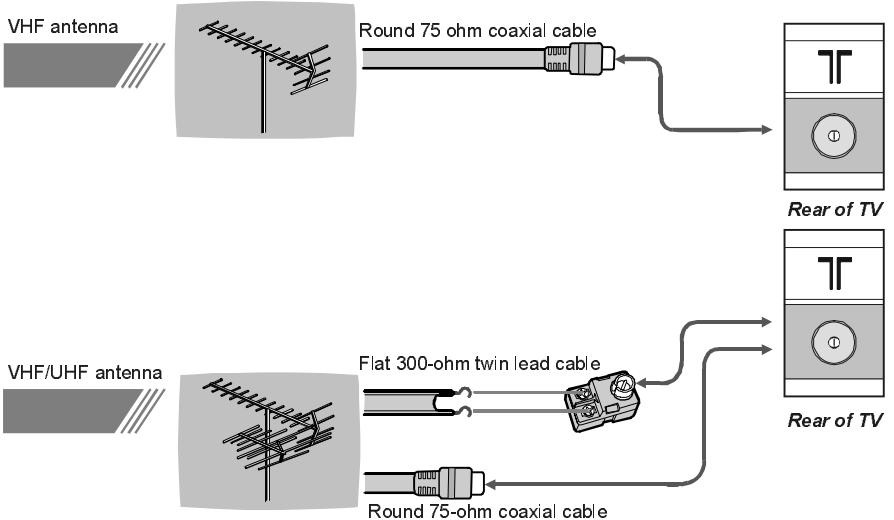
## Peripheral Equipment Connections



\*\* The picture represents the rear view of Model 17D50BK. The connections for Model 23D50BK are identical.

## Antenna Connections

### Outdoor Antenna Connections

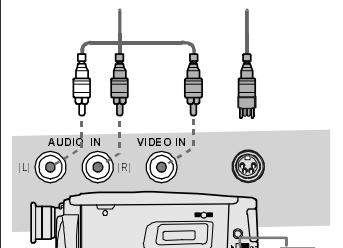
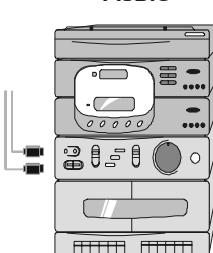


### Peripheral Equipment Connections

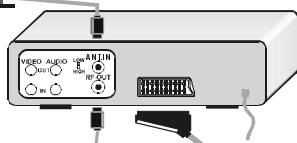
HEADPHONE



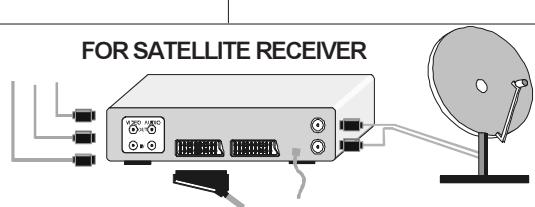
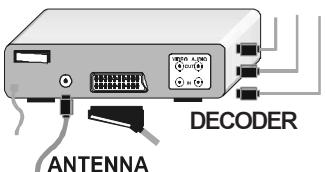
AUDIO



VIDEO



FOR SATELLITE RECEIVER



## PC Input Typical Display Modes (Model: 17D50BK)

The display has a maximum resolution of 1280 x 768, vertical sync. frequency range of 50-75 Hz and a horizontal sync. frequency range of 30-69 KHz.

The following table is an illustration of some of the typical video display modes.

Mode	Resolution		Frequency	
	Horizontal	Vertical	Hor. (kHz)	Ver. (Hz)
1	640	400	31.5	60
2	640	400	31.5	70
3	640	480	31.5	60
4	640	480	37.9	72
5	640	480	37.5	75
6	720	400	31.5	70
7	800	600	35.2	56
8	800	600	37.9	60
9	800	600	48.1	72
10	800	600	46.9	75
11	1024	768	48.4	60
12	1024	768	56.5	70
13	1024	768	60.0	75
14	1280	720	44.6	60
15	1280	768	47.6	60

The native resolution of the TFT-LCD Panel is 1280 x 768. Therefore using Mode 15 is advised to get the best PC input display quality.

## PC Input Typical Display Modes (Model: 23D50BK)

The display has a maximum resolution of 1360 x 768, vertical sync. frequency range of 50-75 Hz and a horizontal sync. frequency range of 30-69 KHz.

The following table is an illustration of some of the typical video display modes.

Mode	Resolution		Frequency	
	Horizontal	Vertical	Hor. (kHz)	Ver. (Hz)
1	640	400	31.5	60
2	640	400	31.5	70
3	640	480	31.5	60
4	640	480	37.9	72
5	640	480	37.5	75
6	720	400	31.5	70
7	800	600	35.2	56
8	800	600	37.9	60
9	800	600	48.1	72
10	800	600	46.9	75
11	1024	768	48.4	60
12	1024	768	56.5	70
13	1024	768	60.0	75
14	1280	720	44.6	60
15	1360	768	47.7	60

The native resolution of the TFT-LCD Panel is 1360 x 768. Therefore using Mode 15 is advised to get the best PC input display quality.

## Tips

### Can not turn the TV on?

Check that TV/VCR/DVD switch is set to TV position.

TV may go to stand-by mode when you turn the TV on soon after you turn the TV off. If you can turn the TV on again, it is not a problem.

### Can not turn the TV off?

Check that TV/VCR/DVD switch is set to TV position.

### Care of the Screen

Clean the screen with a slightly damp, soft cloth. Do not use abrasive solvents as they may damage the TV screen coating layer.

### Colours of image on screen are abnormal

Have you selected the correct TV system? Is your TV set or house aerial located too close to the loudspeakers, non-earthed audio equipment or neon lights, etc. ?

Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the aerial.

Is the picture or Teletext unrecognisable? Check if you have entered the correct frequency.

The picture quality may degrade when two peripherals are connected to the TV at the same time. In such a case, disconnect one of the peripherals.

### No Image on Display Screen

Is the aerial connected properly? Are the plugs connected tightly to the aerial socket?

Is the aerial cable damaged? Are suitable plugs used to connect the aerial? If you are in doubt, consult your dealer.

**No Image** means that your TV is not receiving any transmission. Have you pressed the correct buttons on the remote control? Try once more.

## PC Picture

If no PC picture appears, check that the D-SUB cable is connected properly. Check that your PC's resolution set correctly. See pages 44-45 for supported modes.

### Sound

You can not hear any sound. Did you perhaps interrupt the sound, pressing "MUTE" button? Are external speakers connected to the TV?

Sound is coming from only one of the speakers. Is the balance set to one direction extreme? See **Sound** menu.

### Remote Control

If your TV no longer responds to the remote control, perhaps the batteries are exhausted. Replace the batteries.

Have you selected the wrong menu? Press "MENU" button to return to normal screen or press "BACK" button to return to the previous menu.

### No solution

If the TV suddenly stops responding, disconnect the power cord of the TV from the AC outlet. Connect them to the AC outlet again to turn on the TV. If the TV returns to a normal state, it is not a failure. If this does not work, switch off, remove the mains plug and call the service personnel; never attempt to repair it yourself.

### Bad picture (in digital mode)

Although this TV can receive both Digital terrestrial broadcasting (DVB-T) and Analogue terrestrial broadcasting, you may not be able to receive DVB-T depending on the area in which you live.

If the picture freezes a lot, or block effect is seen frequently on screen, probably there is a problem with your reception.

Please contact customer services of your service provider if you are a subscriber.

## Specifications

Item	Model	LT-17D50BK
Broadcasting Systems		PAL BG, DK, I
Channels and Frequencies		Digital : 474 MHz - 858 MHz Analogue : 46.25 MHz - 862.25 MHz Cable TV (S1-S20/ S21-S41)
Input Signal		Video: Analog 0,7 Vp-p 75 ohm positive Sync: TTL Level positive or negative, Separate sync.
Horizontal Timing		30 - 69 KHz
Vertical Timing		50 - 75 KHz
Dot Rate		78,75 MHz max.
Panel Size		17,01" (433 mm) (measured diagonally)
Visible Picture Size		371,7 mm horizontal x 223,5 mm vertical
Display Resolution		1280 x 768 max. (WXGA)
Number of Preset Channels		100
Channel Indicator		On Screen Display (OSD)
RF Aerial Output		75 Ohm (unbalanced)
Power Requirements		Adaptor: 100-240 V AC, 50 Hz / TV: 12 V DC
Power Consumption (W)		59 W (max) / STAND-BY <3W
Sound Systems		German, Nicam Stereo
Audio Output		2 x 5 W <sub>RMS</sub> (%10 THD)
EXT-1 Terminal		Euroconnector (21-pin, SCART) (bottom of the TV) <ul style="list-style-type: none"> <li>• Video Input, Audio L/R Inputs and RGB inputs are available.</li> <li>• TV broadcast outputs (Video and Audio L/R) are available.</li> </ul>
EXT-2 Terminal		Euroconnector (21-pin, SCART) (bottom of the TV) <ul style="list-style-type: none"> <li>• Video Input, S-VIDEO (Y/C) input, Audio L/R and RGB inputs are available.</li> <li>• Video and Audio L/R outputs are available.</li> <li>• T-V LINK functions are available.</li> </ul>
EXT-3 Terminal		RCA connectors x 5 (bottom of the cabinet) <ul style="list-style-type: none"> <li>• Component video (Pr, Pb, Y) inputs and Audio L-R inputs are available</li> <li>• 576p (625p) and 480p (525p) signals are available.</li> </ul>
EXT-4 Terminal		RCA connectors x 3 (side of the cabinet) S-VIDEO connector x 1 (side of the cabinet) <ul style="list-style-type: none"> <li>• Video input, S-VIDEO (Y/C) input and Audio L/R inputs are available.</li> </ul>
AUDIO OUT Terminal		RCA connectors x 3 <ul style="list-style-type: none"> <li>• Audio L/R output are available.</li> <li>• Subwoofer out is available.</li> </ul>
PC IN terminal		Analog RGB D-SUB 15 x 1 <ul style="list-style-type: none"> <li>• PC signal is available (refer to <a href="#">page 44</a> for details of the signals which can be input)</li> </ul>
PC AUDIO IN terminal		Stereo mini-jack (3.5 mm diameter)
Card Slot		Card Slot for the Conditional Access Module (CAM) x1
Dimensions (W x H x D)		465 mm x 370 mm x 200 mm 465 mm x 326 mm x 72 mm (TV only)
Weight		6,0 kg (with stand) / 5,0 kg (TV only)
Accessories		Remote control unit x 1 (RM-1895) / AA/R6 dry cell battery x 2 AC adapter x 1 Power cord x 1
Headphone jack		Stereo mini-jack (3.5 mm diameter)

## Specifications

Item	Model
Broadcasting Systems	PAL BG, DK, I
Channels and Frequencies	Digital : 474 MHz - 858 MHz Analogue : 46.25 MHz - 862.25 MHz Cable TV (S1-S20/ S21-S41)
Input Signal	Video: Analog 0,7 Vp-p 75 ohm positive Sync: TTL Level positive or negative, Separate sync.
Horizontal Timing	30 - 69 KHz
Vertical Timing	50 - 75 KHz
Dot Rate	78,75 MHz max.
Panel Size	23,01" (583,1 mm) (measured diagonally)
Visible Picture Size	508,5 mm horizontal x 286,1 mm vertical
Display Resolution	1360 x 768 max. (WXGA)
Number of Preset Channels	100
Channel Indicator	On Screen Display (OSD)
RF Aerial Output	75 Ohm (unbalanced)
Power Requirements	Adaptor: 100-240 V AC, 50 Hz / TV: 24 V DC
Power Consumption (W)	110 W (max) / STAND-BY <3W
Sound Systems	German, Nicam Stereo
Audio Output	2 x 5 W <sub>RMS</sub> (%10 THD)
EXT-1 Terminal	Euroconnector (21-pin, SCART) (bottom of the TV) <ul style="list-style-type: none"> <li>• Video Input, Audio L/R Inputs and RGB inputs are available.</li> <li>• TV broadcast outputs (Video and Audio L/R) are available.</li> </ul>
EXT-2 Terminal	Euroconnector (21-pin, SCART) (bottom of the TV) <ul style="list-style-type: none"> <li>• Video Input, S-VIDEO (Y/C) input, Audio L/R and RGB inputs are available.</li> <li>• Video and Audio L/R outputs are available.</li> <li>• T-V LINK functions are available.</li> </ul>
EXT-3 Terminal	RCA connectors x 5 (bottom of the cabinet) <ul style="list-style-type: none"> <li>• Component video (Pr, Pb, Y) inputs and Audio L-R inputs are available</li> <li>• 576p (625p) and 480p (525p) signals are available.</li> </ul>
EXT-4 Terminal	RCA connectors x 3 (side of the cabinet) S-VIDEO connector x 1 (side of the cabinet) <ul style="list-style-type: none"> <li>• Video input, S-VIDEO (Y/C) input and Audio L/R inputs are available.</li> </ul>
AUDIO OUT Terminal	RCA connectors x 3 <ul style="list-style-type: none"> <li>• Audio L/R output are available.</li> <li>• Subwoofer out is available.</li> </ul>
PC IN terminal	Analog RGB D-SUB 15 x 1 <ul style="list-style-type: none"> <li>• PC signal is available (refer to page 45 for details of the signals which can be input)</li> </ul>
PC AUDIO IN terminal	Stereo mini-jack (3.5 mm diameter)
Card Slot	Card Slot for the Conditional Access Module (CAM) x1
Dimensions (W x H x D)	614 mm x 482 mm x 240 mm 614 mm x 438 mm x 79 mm (TV only)
Weight	7,4 kg (with stand) / 6,4 kg (TV only)
Accessories	Remote control unit x 1 (RM-1895) / AA/R6 dry cell battery x 2 AC adapter x 1 Power cord x 1
Headphone jack	Stereo mini-jack (3.5 mm diameter)

## Corrections

The following corrections are made on the related pages.

Page 25:

"You can either perform a First Time Installation, effectively resetting the receiver to its factory setting condition, or just search for channels."

should be:

"You can either select Factory Settings, effectively resetting the receiver to its factory setting condition, or just search for channels."

Page 25:

Installation menu picture should be:



Page 26:

"First Time Installation:

To reset the TV, highlight the First Time Installation line in the menu and press **OK**. A warning screen is displayed in case of accidental operation.

Are you sure you want to delete all channels and settings for first time installation?

Yes

No

Highlight the YES button with the “◀” or “▶” key and press **OK** to erase all the channels and settings and switch the receiver to standby."

should be:

"Factory settings:

To reset the TV, highlight the Factory Settings line in the menu and press **OK**. A warning screen is displayed in case of accidental operation.

Are you sure you want to delete the PR list and reset all settings?

Yes

No

Highlight the YES button with the “◀” or “▶” key and press **OK** to erase all the channels and settings. A message will be displayed on the screen.

PR List Empty. Start automatic search.

OK

- Press the **OK** button to start the automatic search.
- When the automatic search has finished, the EDIT PR LIST menu appears."

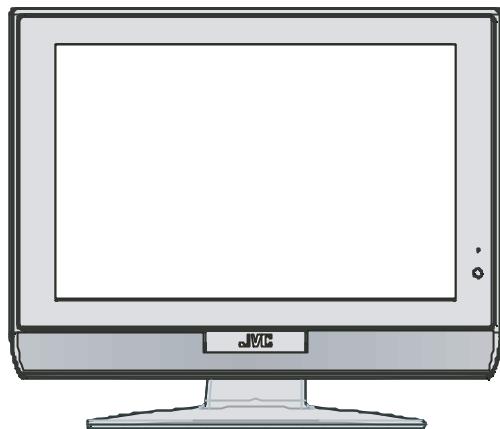
# JVC

## SCHEMATIC DIAGRAMS

WIDE LCD PANEL TELEVISION

### LT-23D50BK

CD-ROM No.SML200508



InteríArt

DVB  
Digital Video  
Broadcasting

# LT-23D50BK

# STANDARD CIRCUIT DIAGRAM

## ■ NOTE ON USING CIRCUIT DIAGRAMS

### 1.SAFETY

The components identified by the  symbol and shading are critical for safety. For continued safety replace safety critical components only with manufacturers recommended parts.

### 2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- (1)Input signal : Colour bar signal
- (2)Setting positions of each knob/button and variable resistor : Original setting position when shipped
- (3)Internal resistance of tester : DC 20kΩ/V
- (4)Oscilloscope sweeping time : H ⇒ 20μs / div  
: V ⇒ 5ms / div  
: Others ⇒ Sweeping time is specified
- (5)Voltage values : All DC voltage values

\* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

### 3.INDICATION OF PARTS SYMBOL [EXAMPLE]

- In the PW board : R209 → R209

### 4.INDICATIONS ON THE CIRCUIT DIAGRAM

#### (1)Resistors

##### ● Resistance value

- No unit : [Ω]
- K : [kΩ]
- M : [MΩ]

##### ● Rated allowable power

- No indication : 1/16 [W]
- Others : As specified

##### ● Type

- No indication : Carbon resistor
- OMR : Oxide metal film resistor
- MFR : Metal film resistor
- MPR : Metal plate resistor
- UNFR : Uninflammable resistor
- FR : Fusible resistor

\* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

#### (2)Capacitors

##### ● Capacitance value

- 1 or higher : [pF]
- less than 1 : [μF]

##### ● Withstand voltage

- No indication : DC50[V]
- Others : DC withstand voltage [V]
- AC indicated : AC withstand voltage [V]

\* Electrolytic Capacitors

47/50[Example]: Capacitance value [μF]/withstand voltage[V]

#### ●Type

No indication	: Ceramic capacitor
MM	: Metallized mylar capacitor
PP	: Polypropylene capacitor
MPP	: Metallized polypropylene capacitor
MF	: Metallized film capacitor
TF	: Thin film capacitor
BP	: Bipolar electrolytic capacitor
TAN	: Tantalum capacitor

#### (3)Coils

No unit	: [μH]
Others	: As specified

#### (4)Power Supply

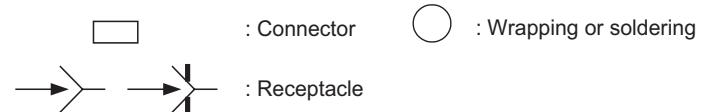


\* Respective voltage values are indicated

#### (5)Test point



#### (6)Connecting method



#### (7)Ground symbol

	: LIVE side ground
	: ISOLATED(NEUTRAL) side ground
	: EARTH ground
	: DIGITAL ground

### 5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : () side GND and the ISOLATED(NEUTRAL) : () side GND. Therefore, care must be taken for the following points.

- (1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. if the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus ( oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.

◆ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

#### NOTE

- ◆ Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.  
When ordering parts, please use the numbers that appear in the Parts List.

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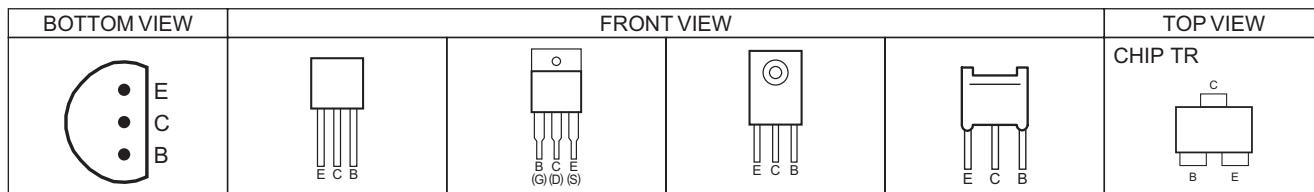
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## USING P.W. BOARD

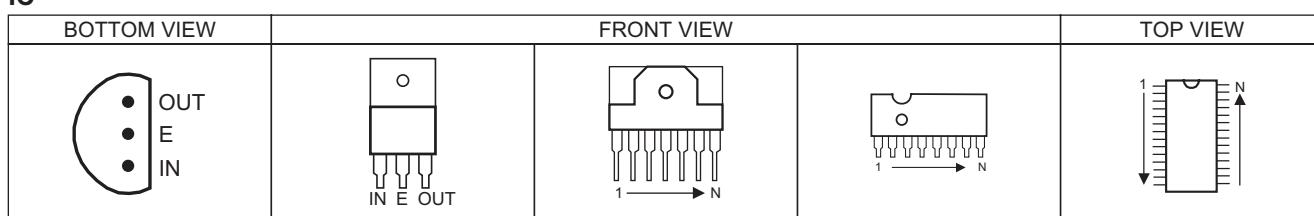
P.W.B ASS'Y name	P.W.B ASS'Y number
MAIN P.W. BOARD	VE-20184629
SIDE CONTROL P.W. BOARD	VE-20174624
LED P.W. BOARD	VE-20174629
AV JACK P.W. BOARD	VE-20177847
HEADPHONE JACK P.W. BOARD	VE-20177874

## SEMICONDUCTOR SHAPES

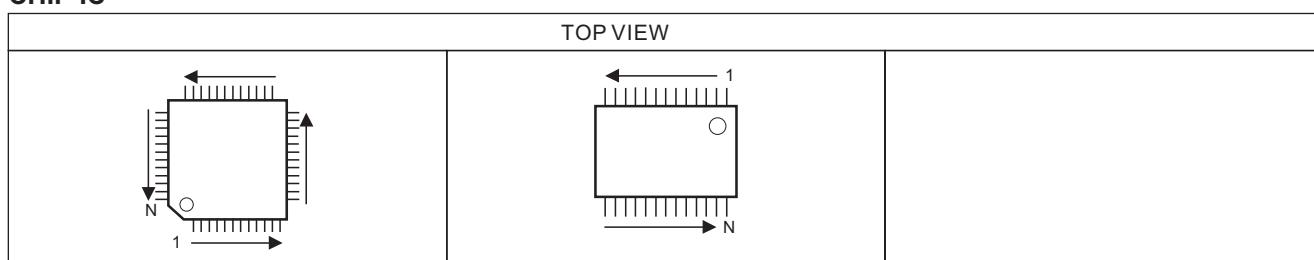
### TRANSISTOR



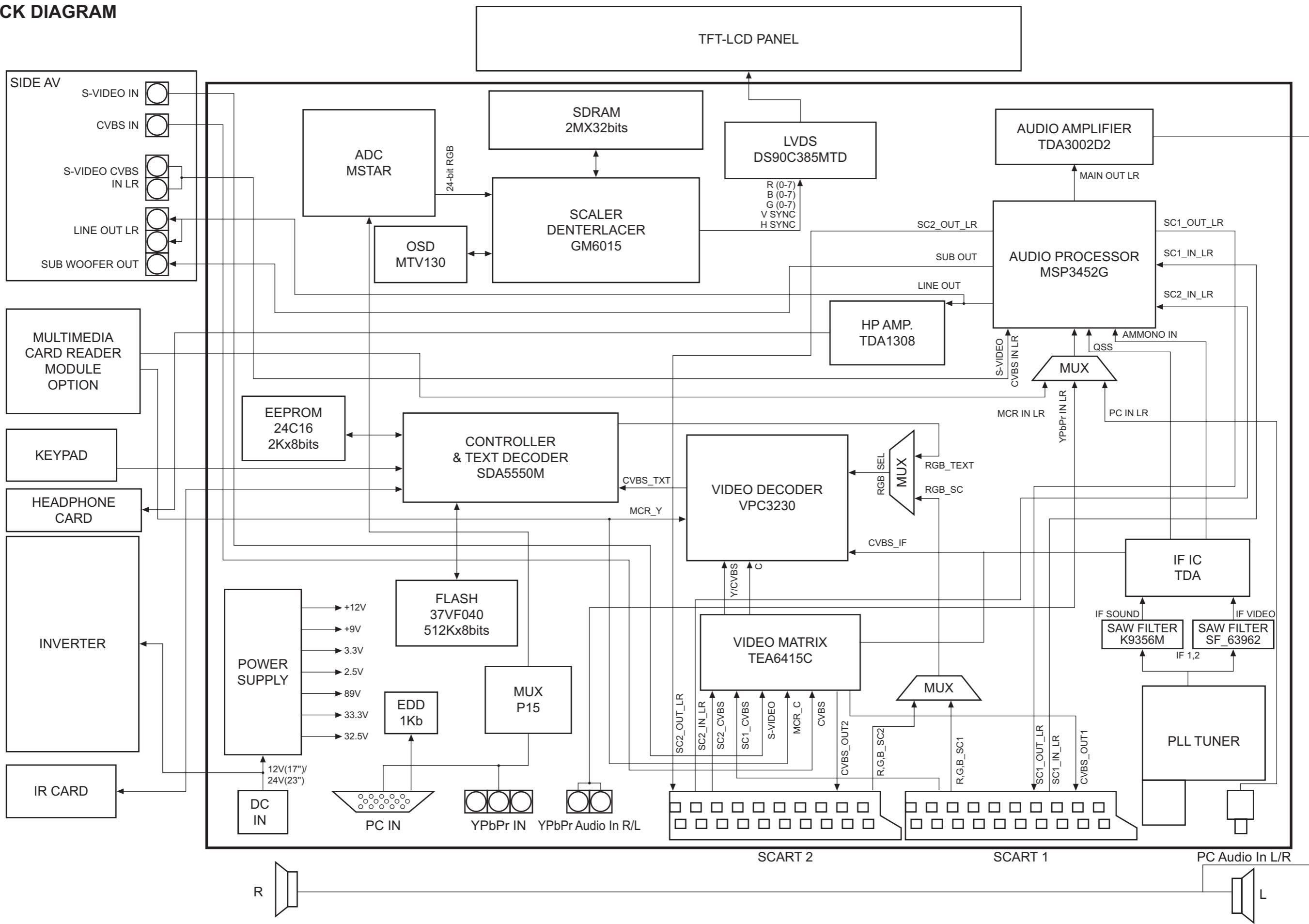
### IC



### CHIP IC

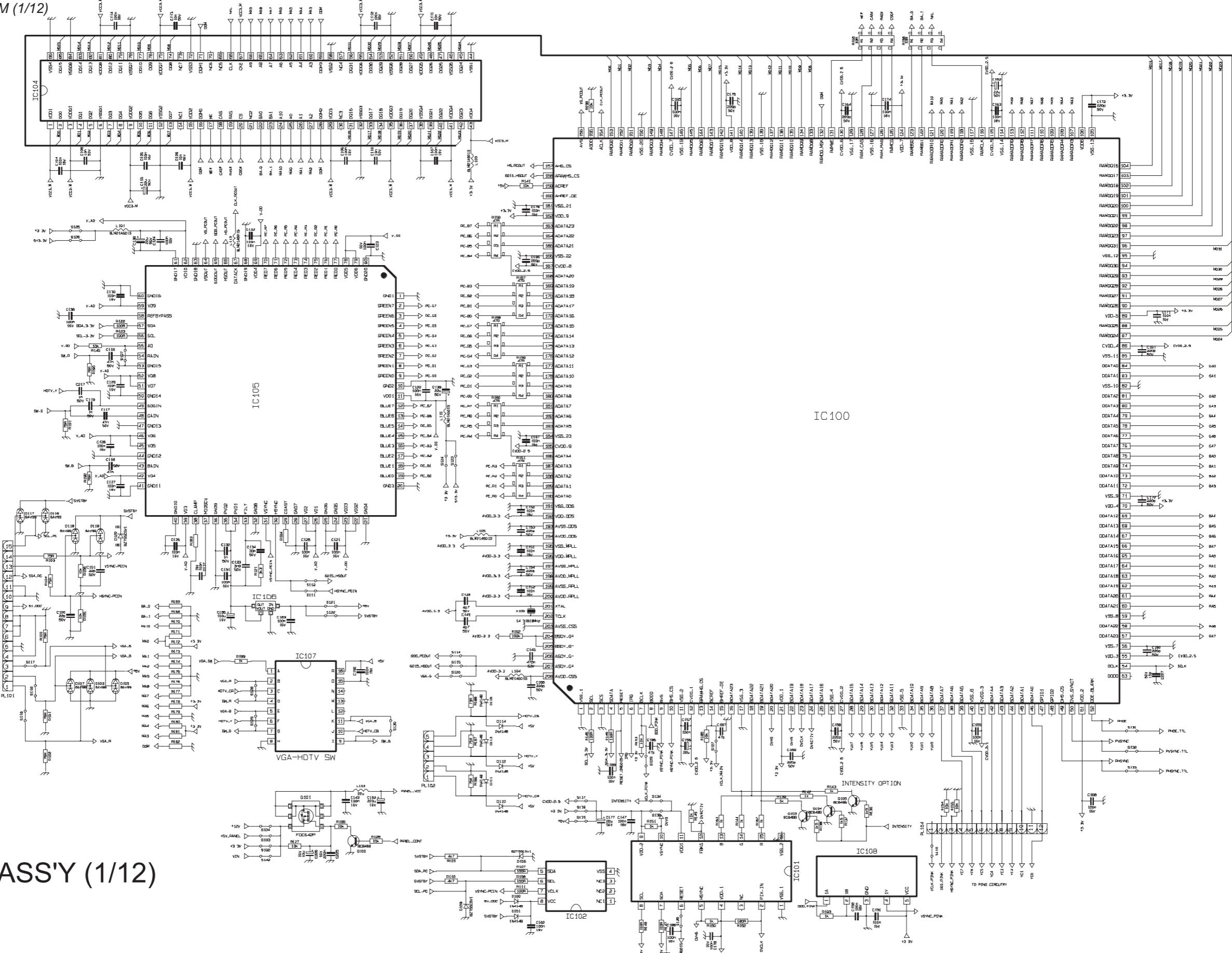


## BLOCK DIAGRAM



## CIRCUIT DIAGRAMS

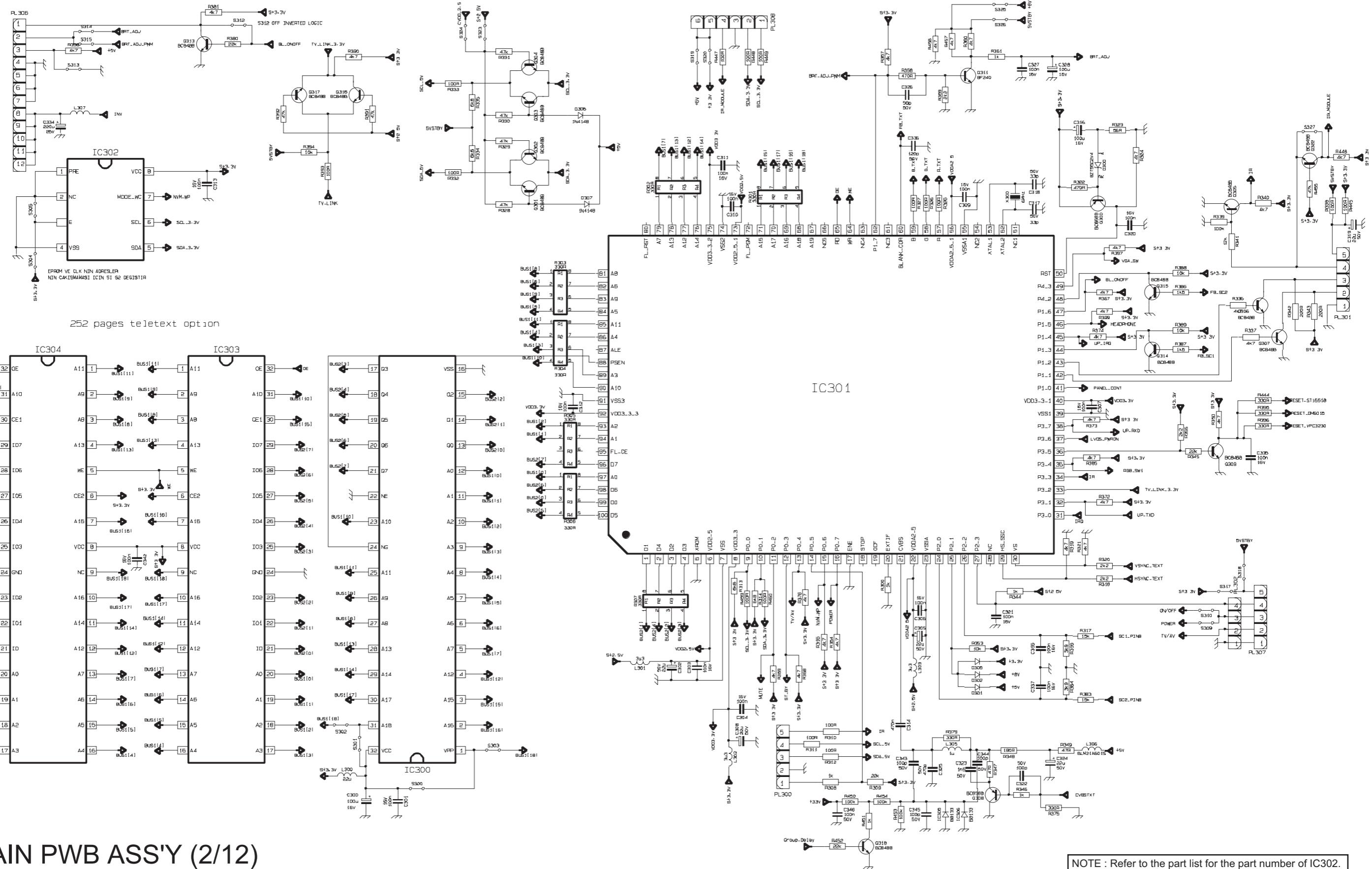
MAIN PWB CIRCUIT DIAGRAM (1/12) ...



# MAIN PWB ASS'Y (1/12)

VE-20184629

## *MAIN PWB CIRCUIT DIAGRAM (2/12)*

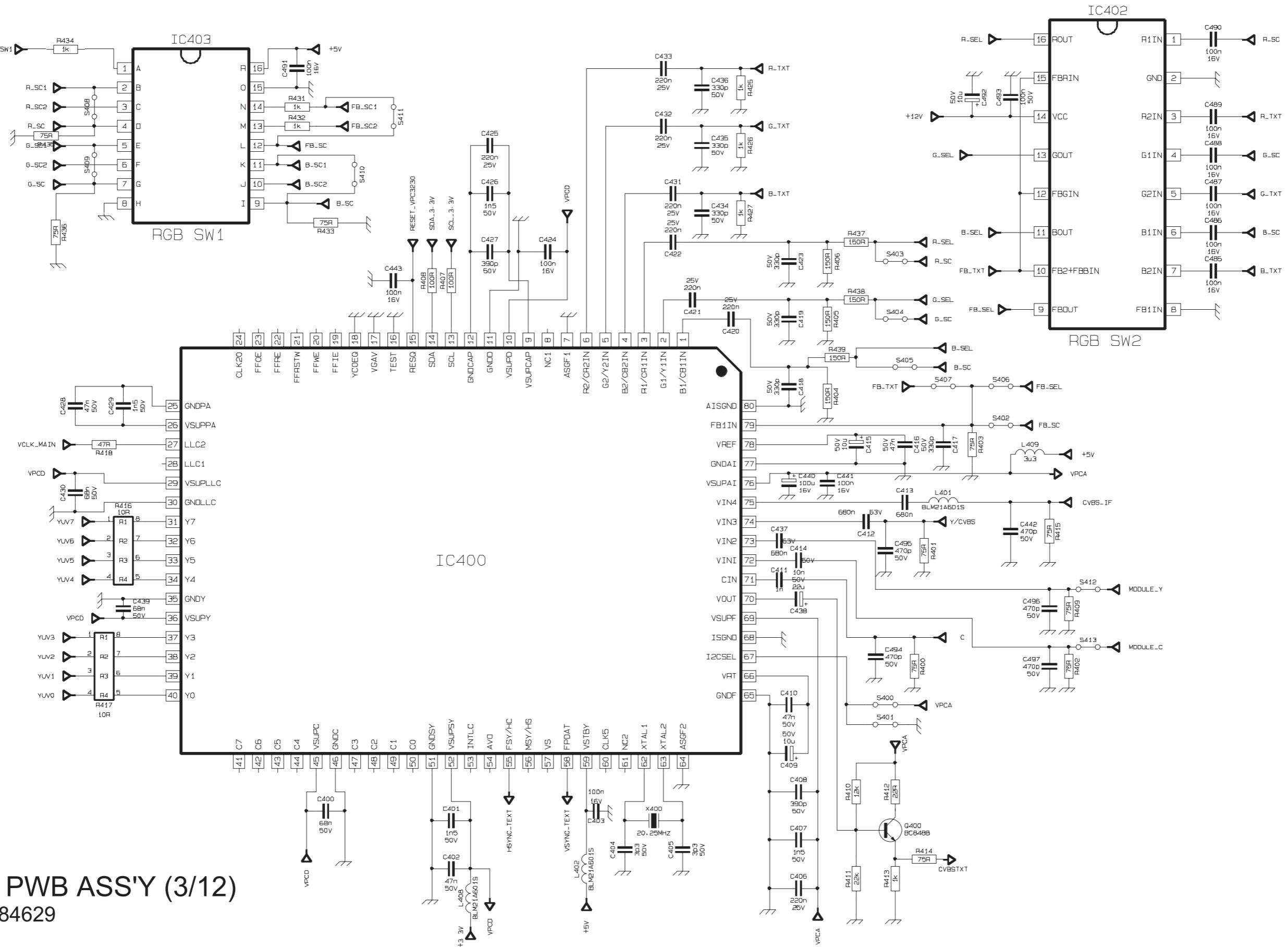


# MAIN PWB ASS'Y (2/12)

VE-20184629

**NOTE :** Refer to the part list for the part number of IC302.

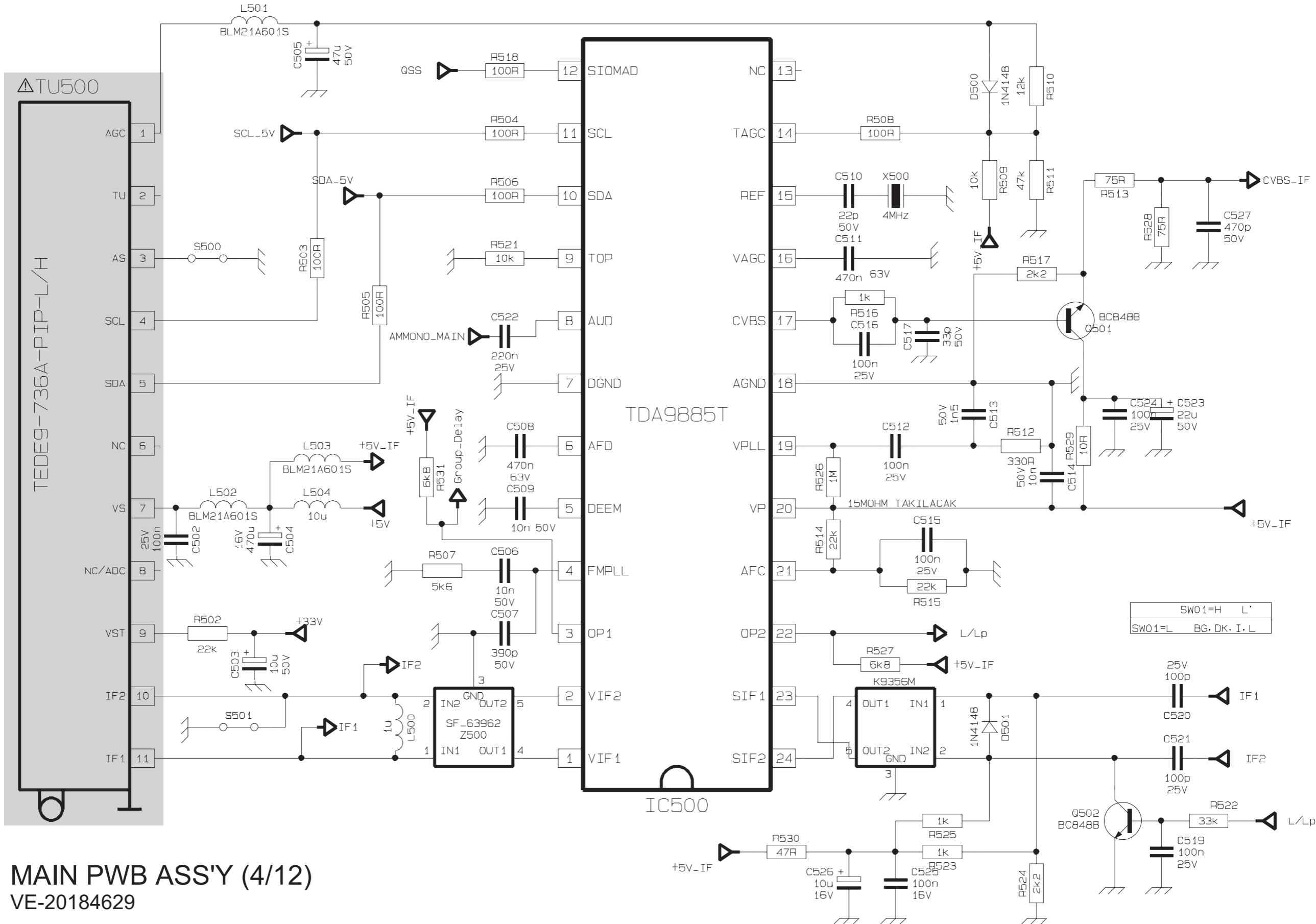
### *MAIN PWB CIRCUIT DIAGRAM (3/12)*



# MAIN PWB ASS'Y (3/12)

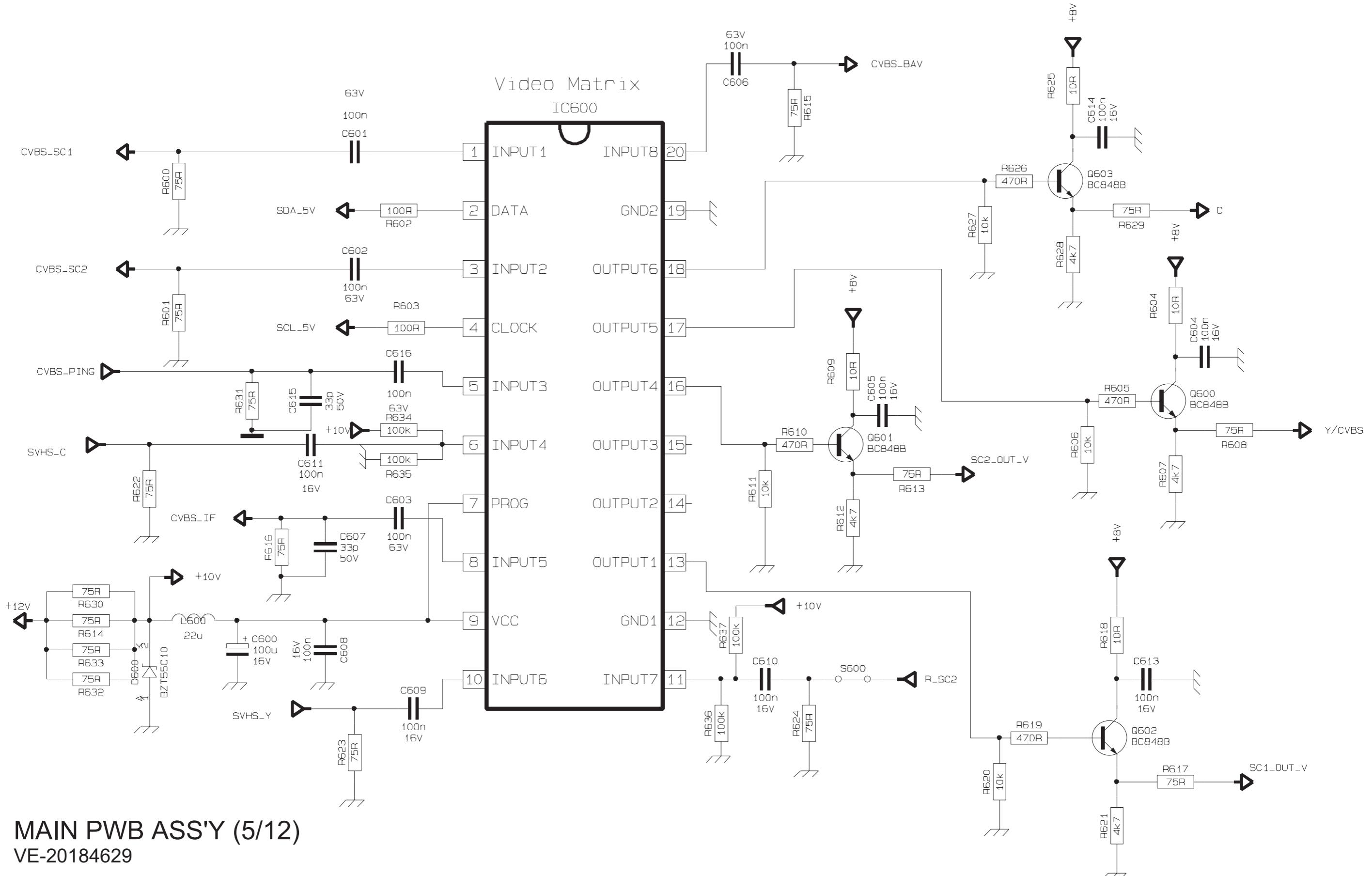
VE-20184629

MAIN PWB CIRCUIT DIAGRAM (4/12)



MAIN PWB ASS'Y (4/12)  
VE-20184629

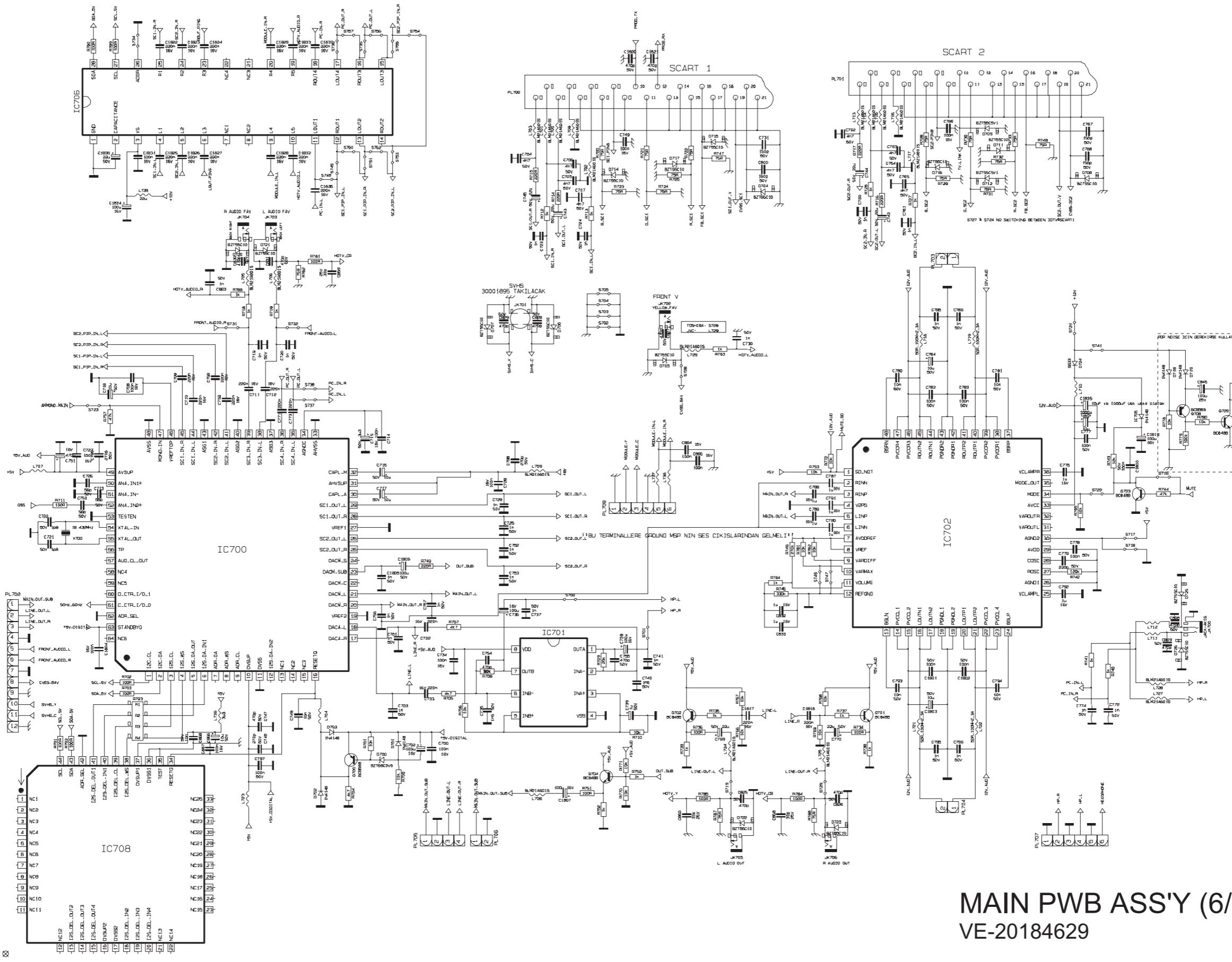
## *MAIN PWB CIRCUIT DIAGRAM (5/12)*



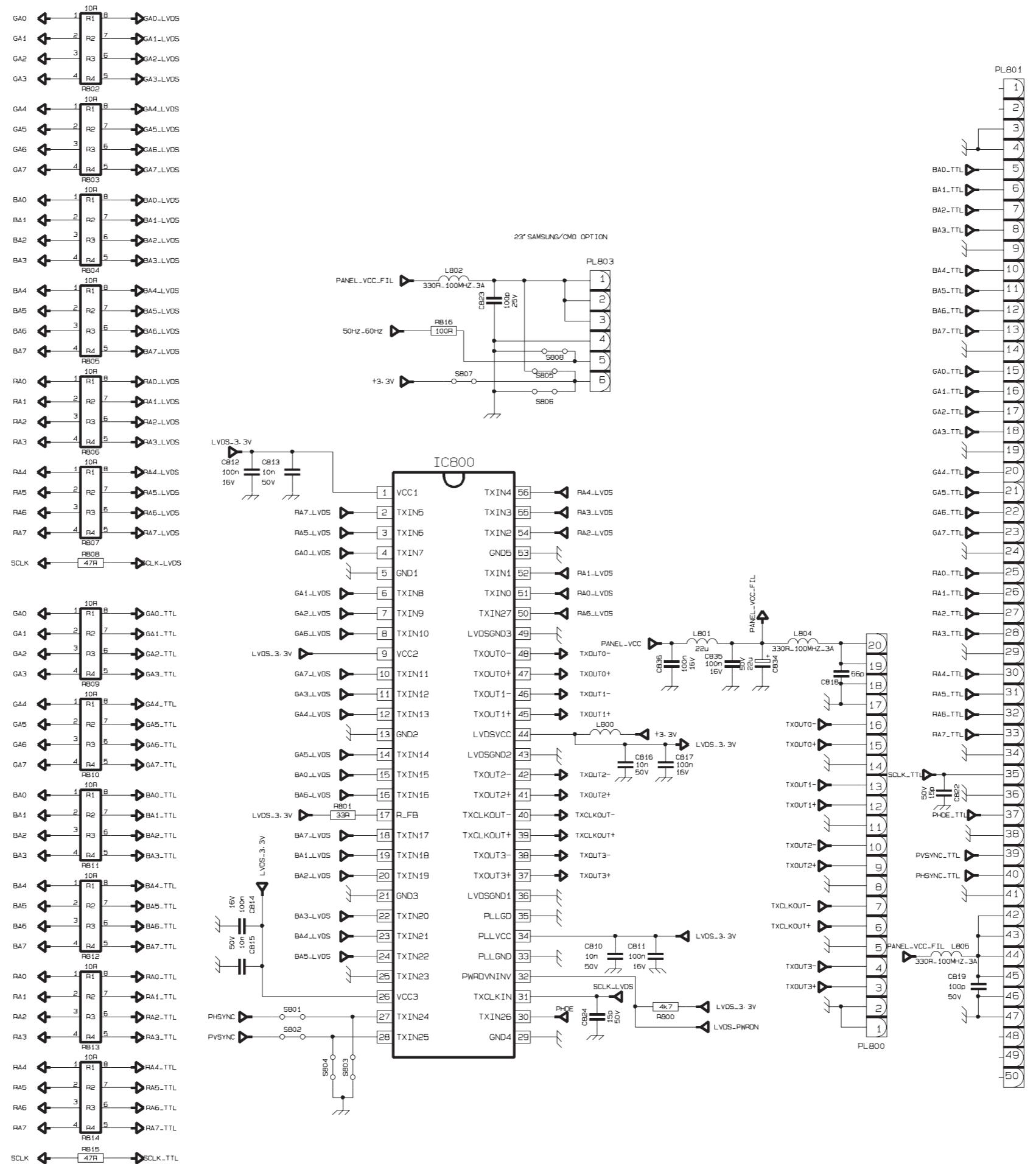
# MAIN PWB ASS'Y (5/12)

VE-20184629

MAIN PWB CIRCUIT DIAGRAM (6/12)



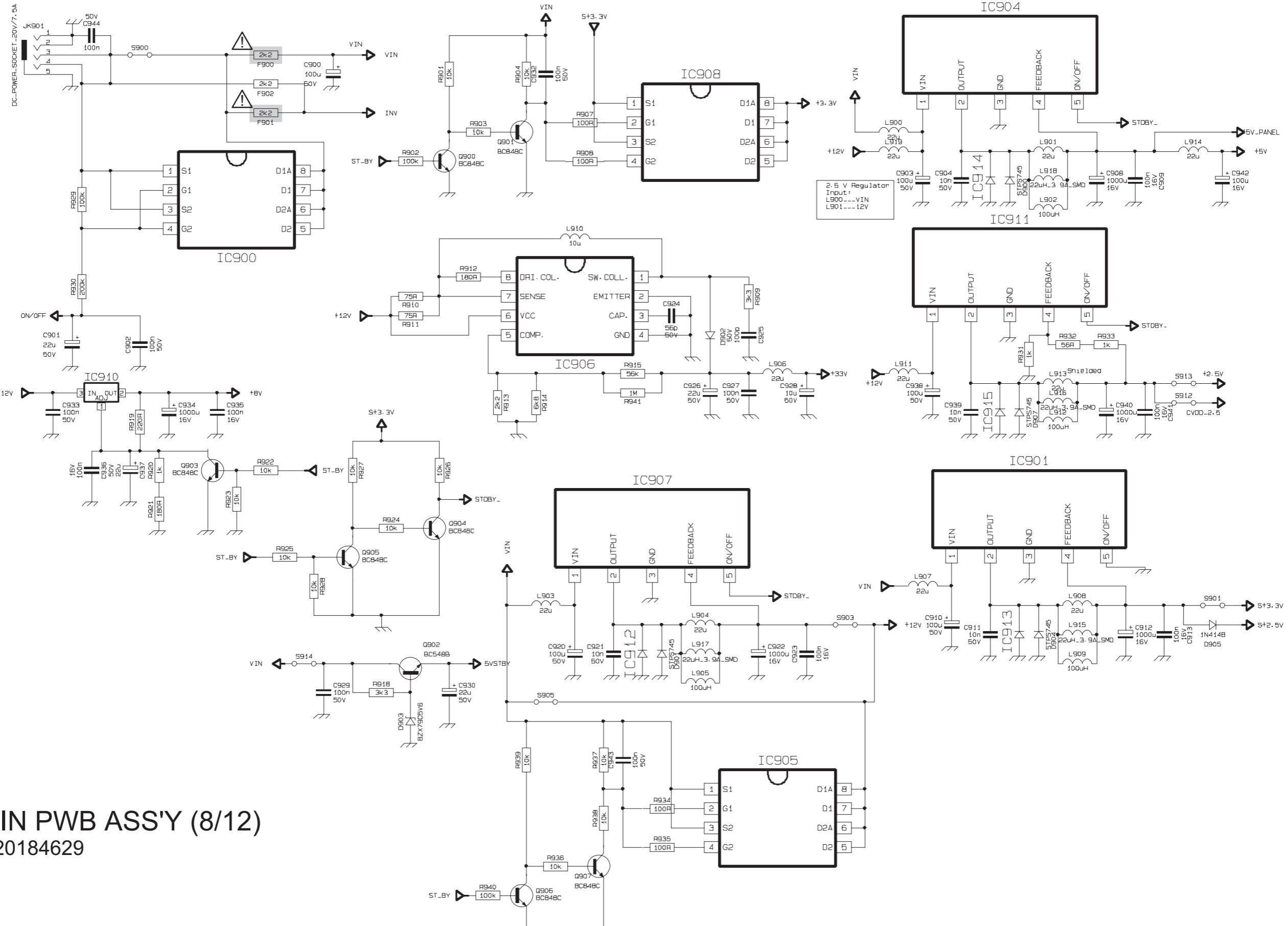
## *MAIN PWB CIRCUIT DIAGRAM (7/12)*



# MAIN PWB ASS'Y (7/12)

VE-20184629

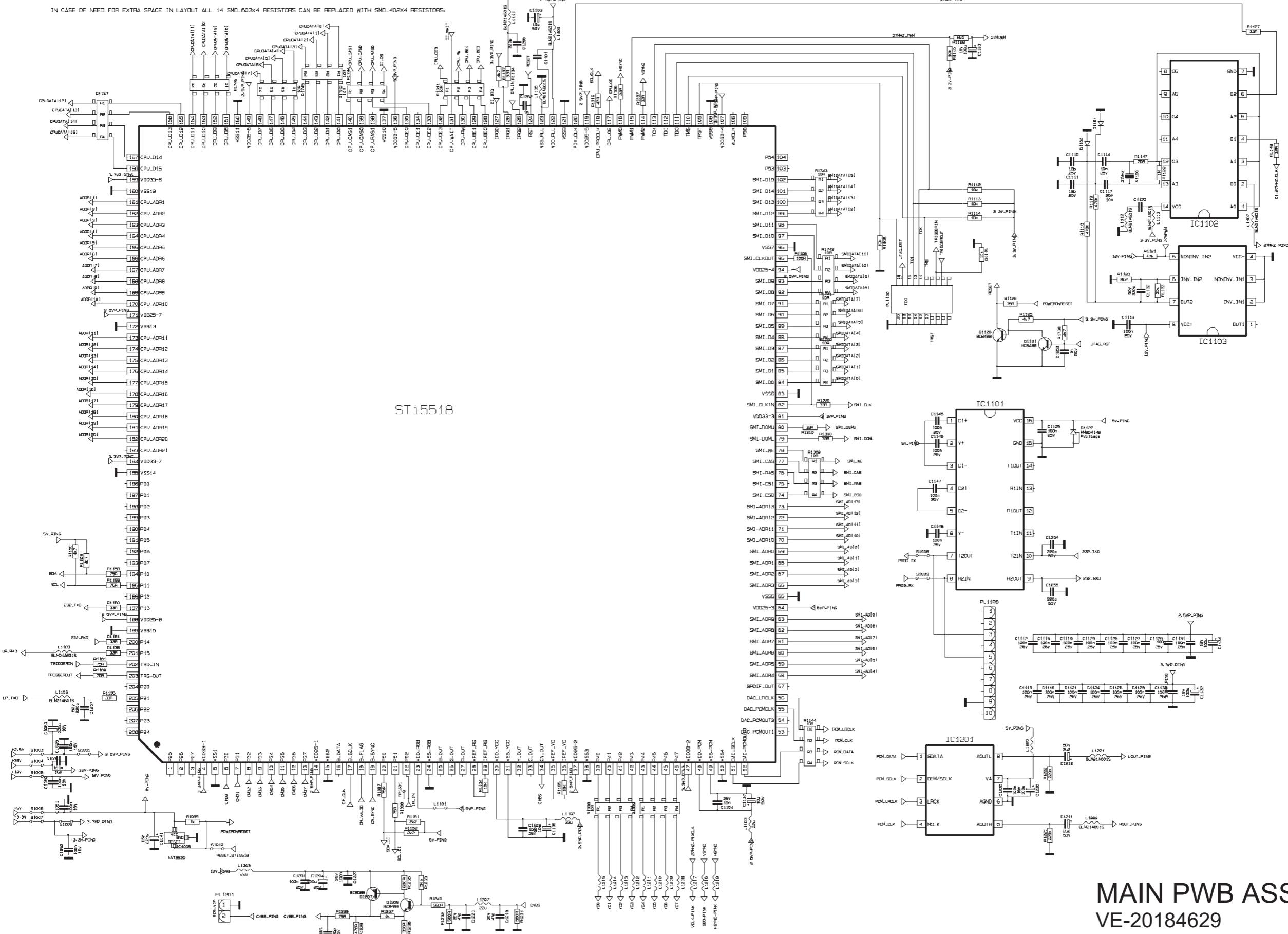
## MAIN PWB CIRCUIT DIAGRAM (8/12)



# MAIN PWB ASS'Y (8/12)

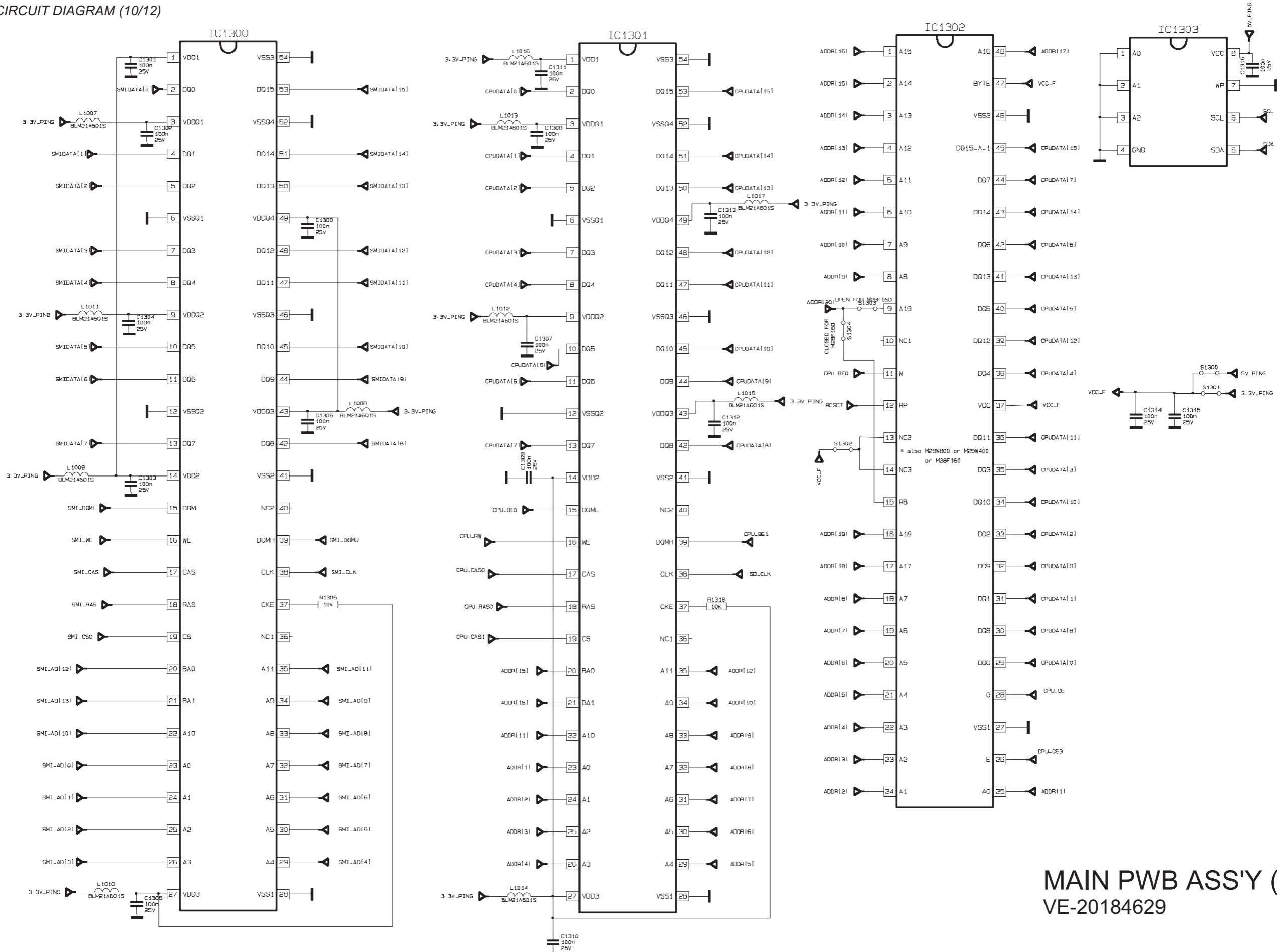
VE-20184629

## MAIN PWB CIRCUIT DIAGRAM (9/12)



MAIN PWB ASS'Y (9/12)  
VE-20184629

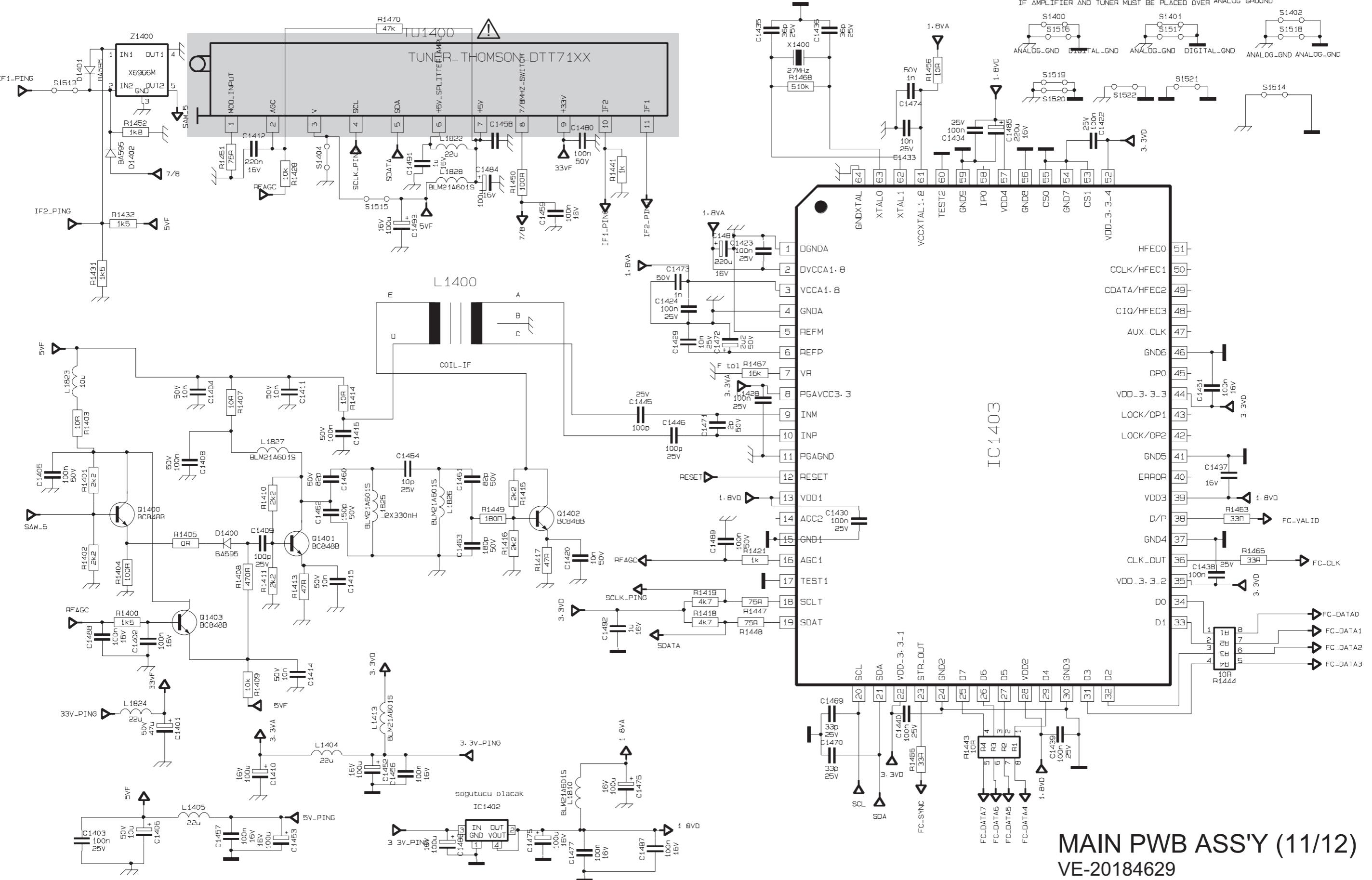
## *MAIN PWB CIRCUIT DIAGRAM (10/12)*



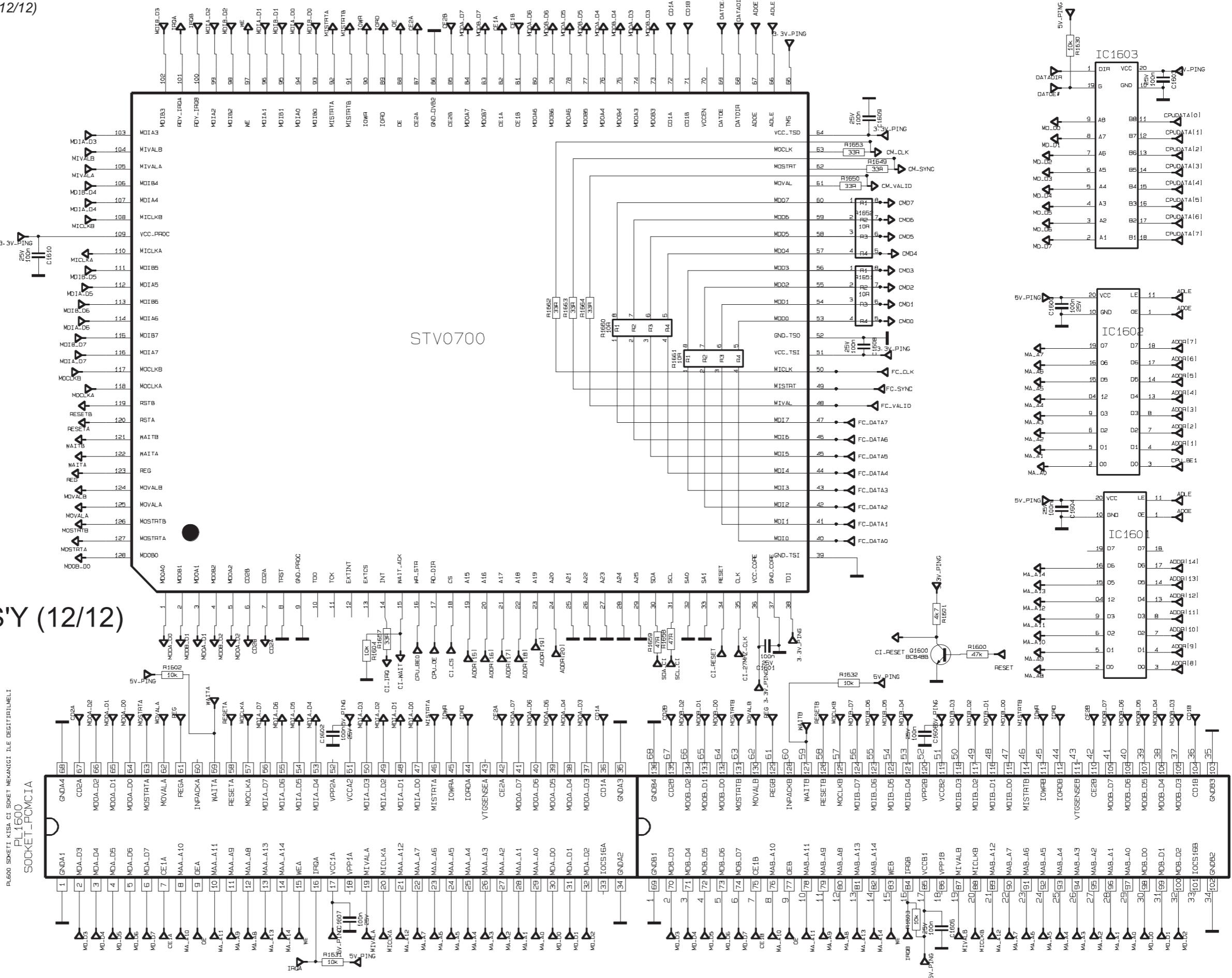
# MAIN PWB ASS'Y (10/12)

VE-20184629

MAIN PWB CIRCUIT DIAGRAM (11/12)



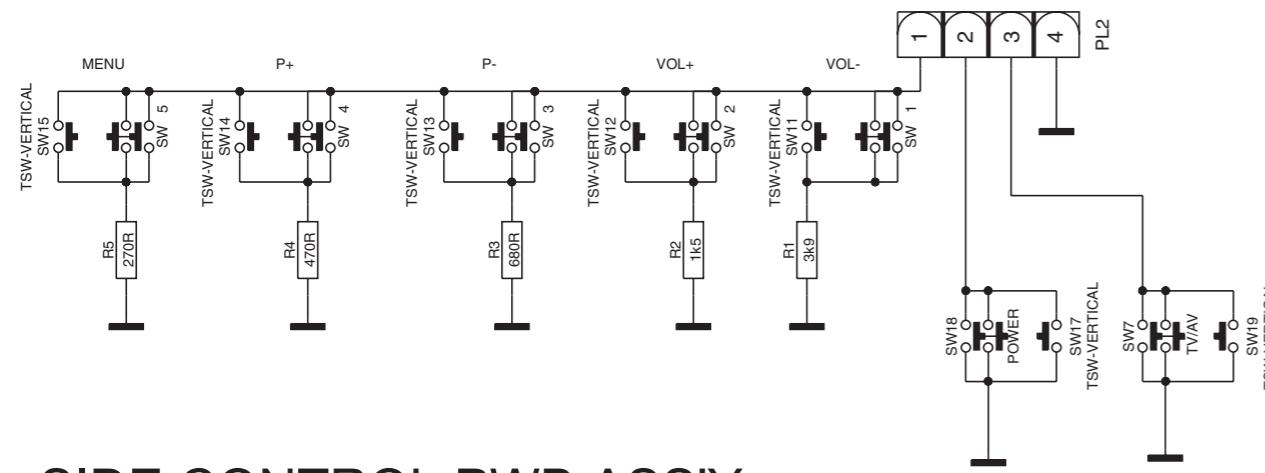
## *MAIN PWB CIRCUIT DIAGRAM (12/12)*



# MAIN PWB ASS'Y (12/12)

VE-20184629

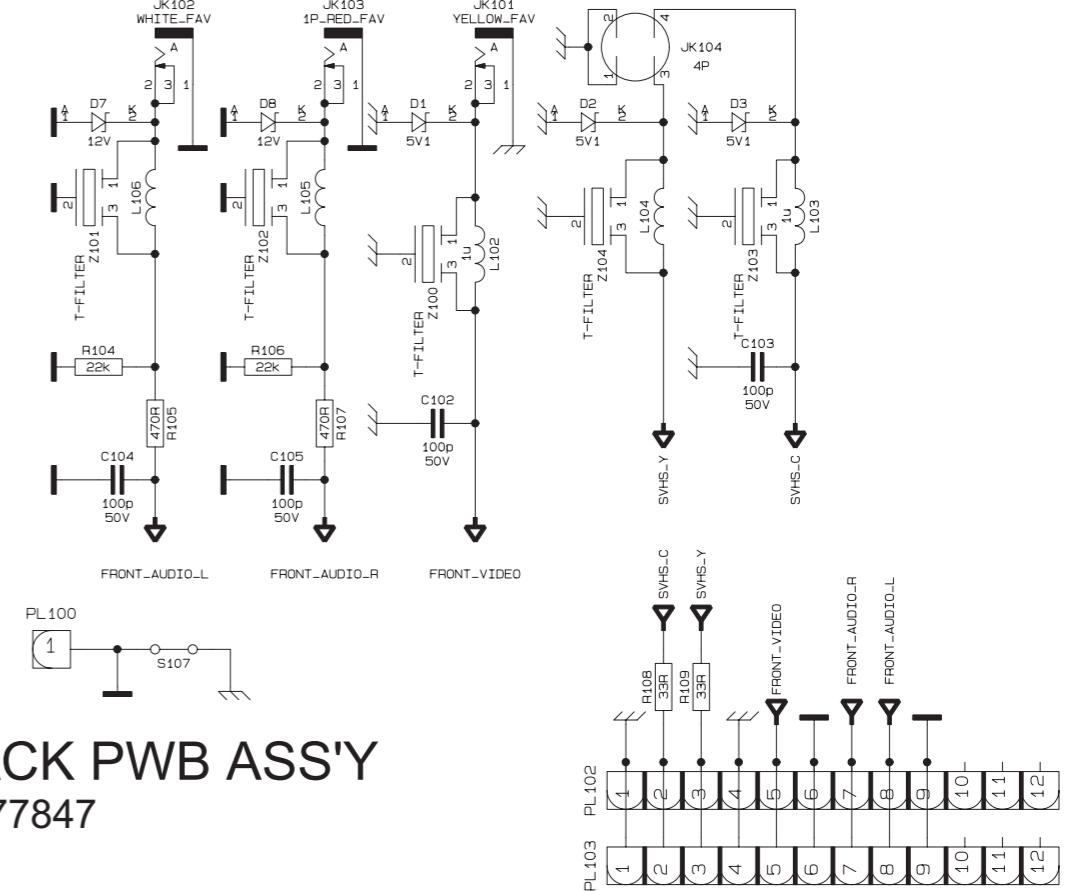
SIDE CONTROL PWB CIRCUIT DIAGRAM



SIDE CONTROL PWB ASS'Y

VE-20174624

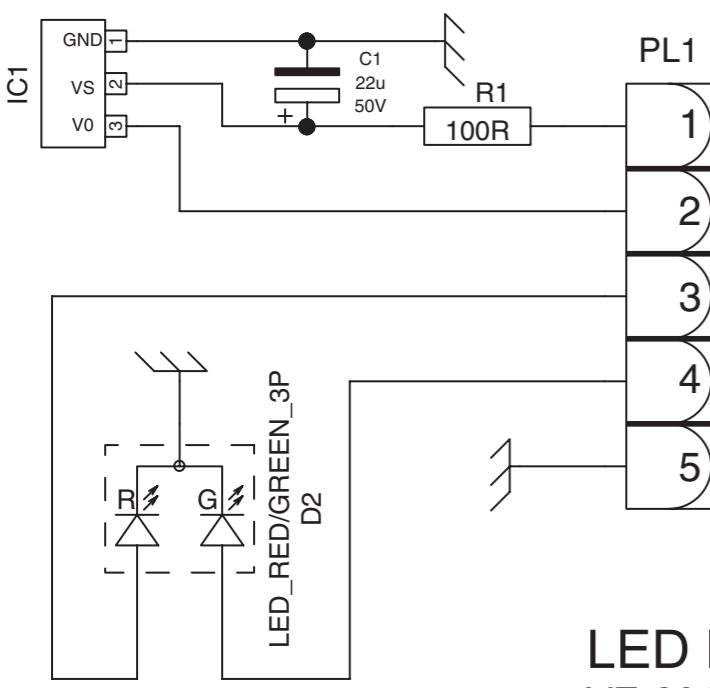
AV JACK PWB CIRCUIT DIAGRAM



AV JACK PWB ASS'Y

VE-20177847

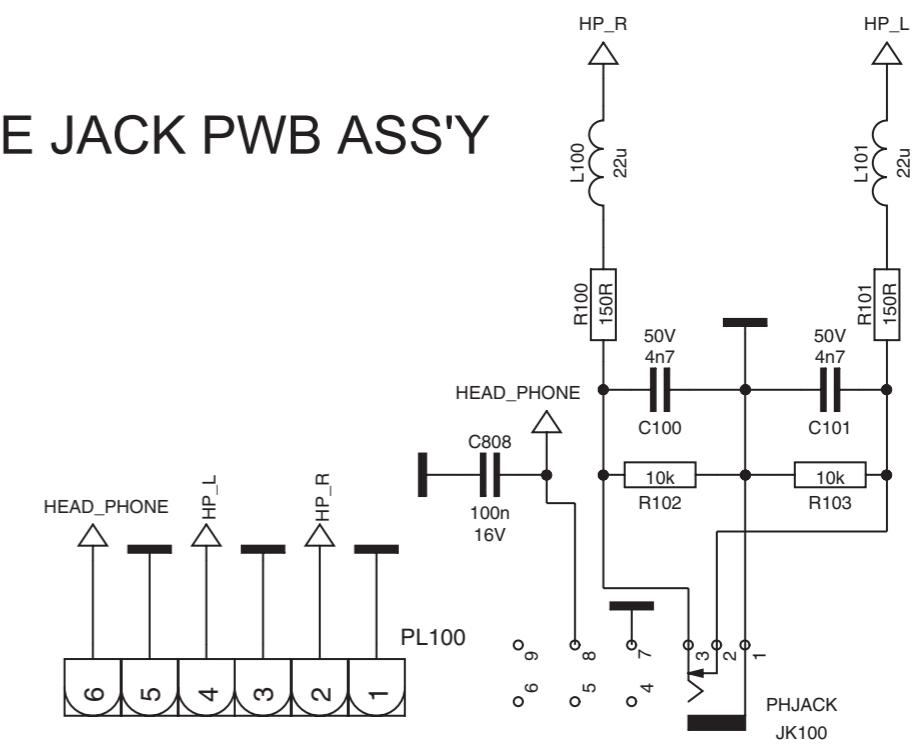
LED PWB CIRCUIT DIAGRAM



LED PWB ASS'Y  
VE-20174629

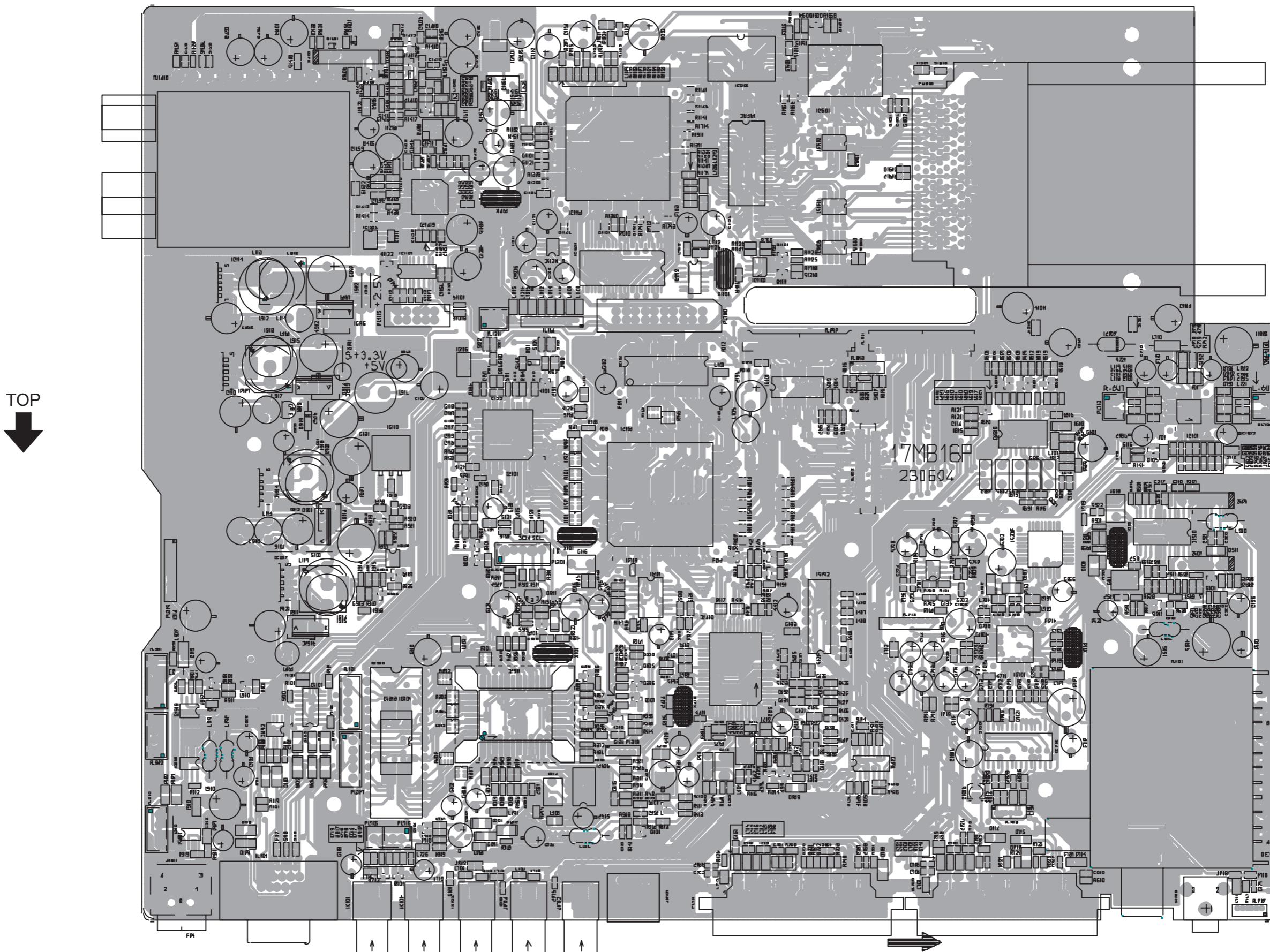
HEADPHONE JACK PWB CIRCUIT DIAGRAM

HEADPHONE JACK PWB ASS'Y  
VE-20177874



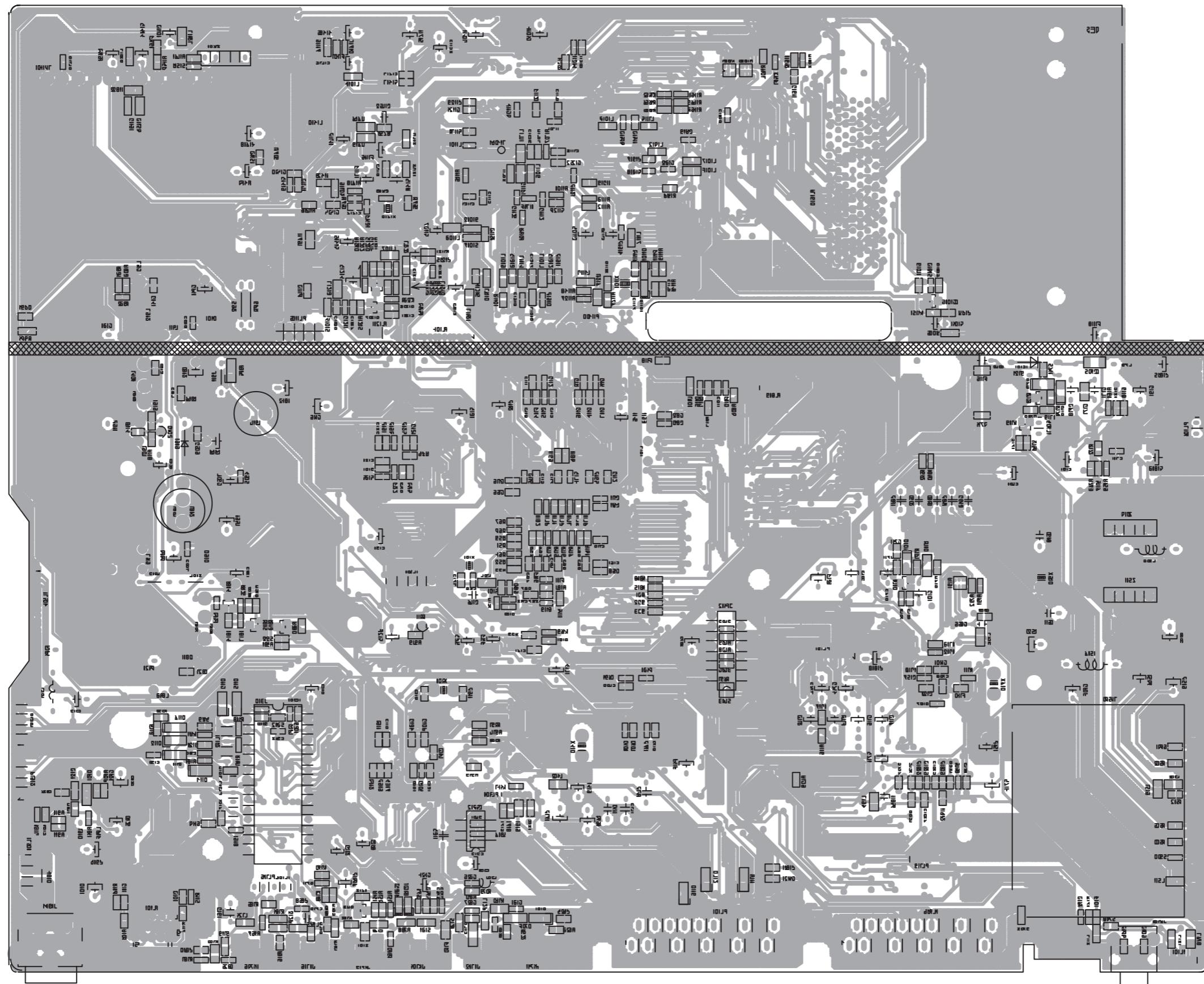
## PATTERN DIAGRAMS

### **MAIN PWB PATTERN [SOLDER SIDE]**



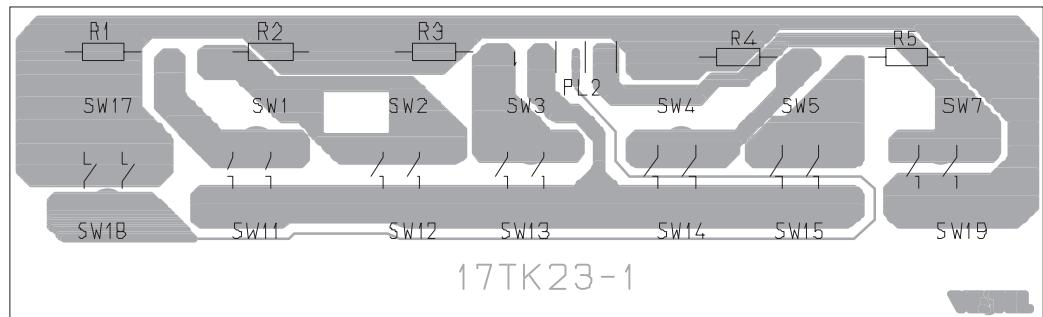
MAIN PWB PATTERN [PARTS SIDE]

TOP  
↓



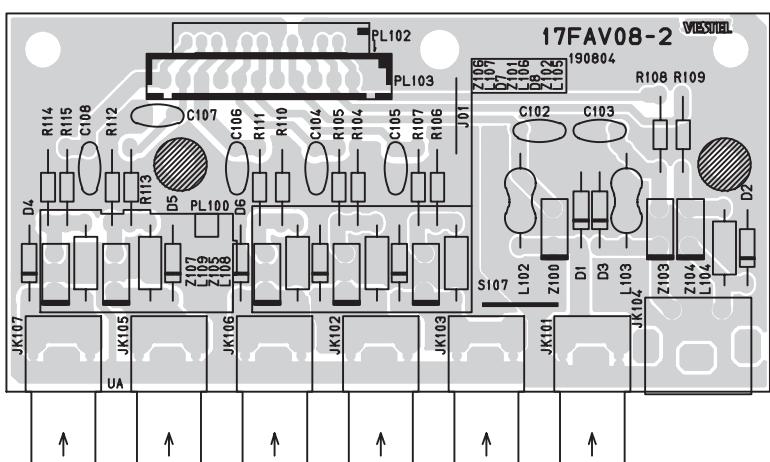
SIDE CONTEROL PWB PATTERN

FRONT  
↓

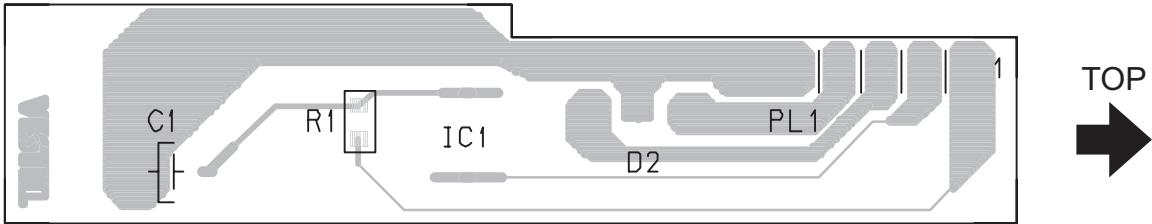


AV JACK PWB PATTERN

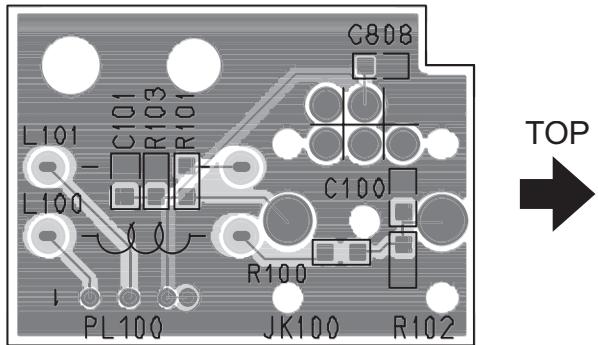
TOP  
→



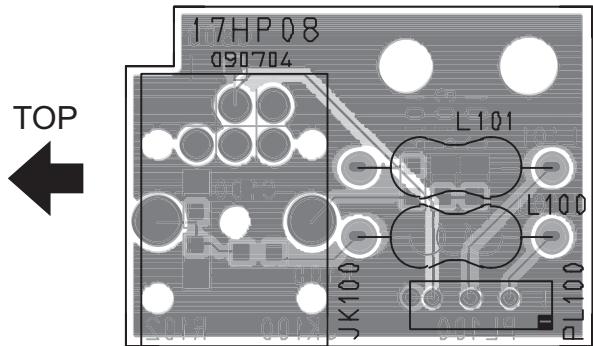
*LED PWB PATTERN*



*HEADPHONE JACK PWB PATTERN [SOLDER SIDE]*



*HEADPHONE JACK PWB PATTERN [PARTS SIDE]*





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